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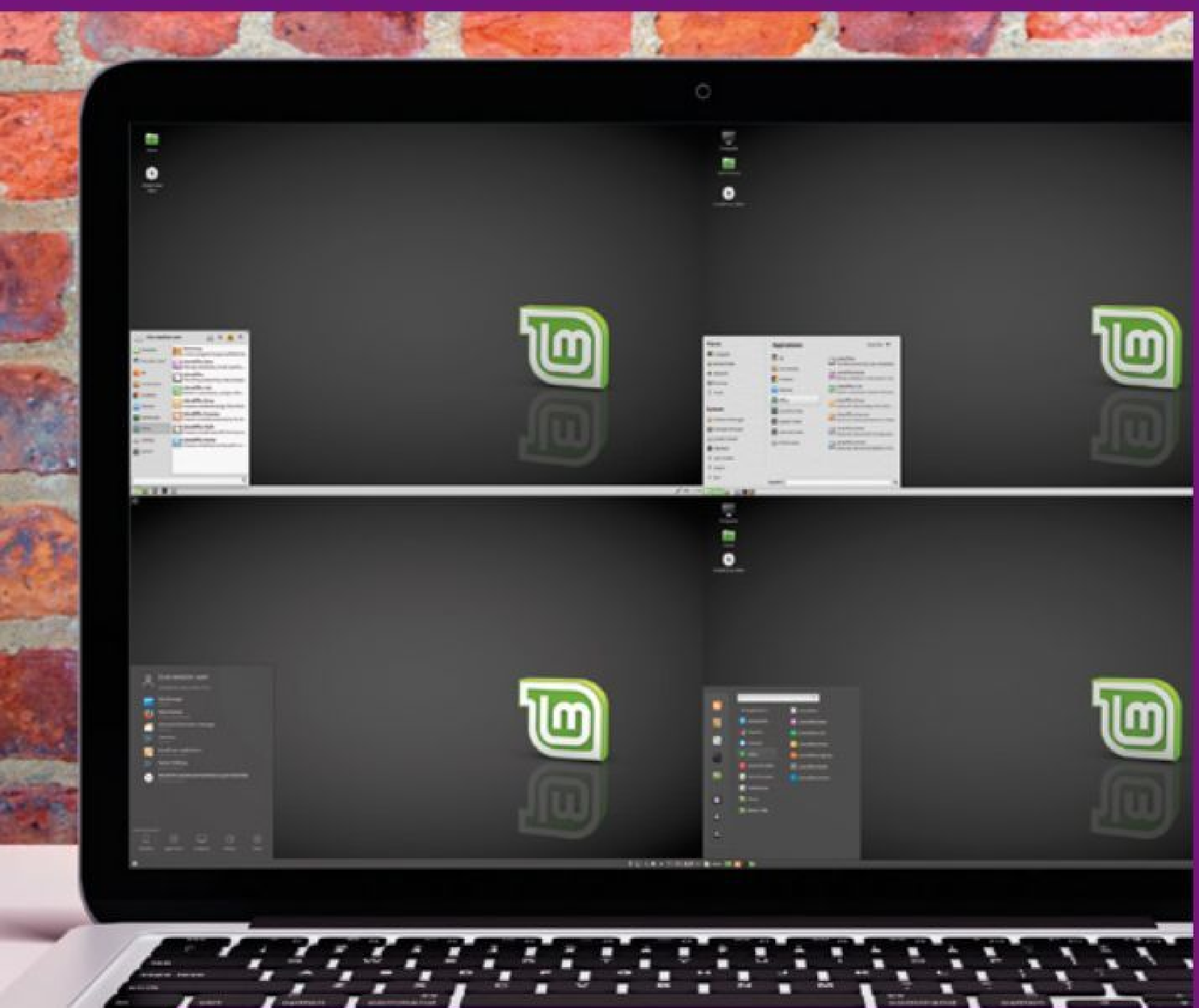

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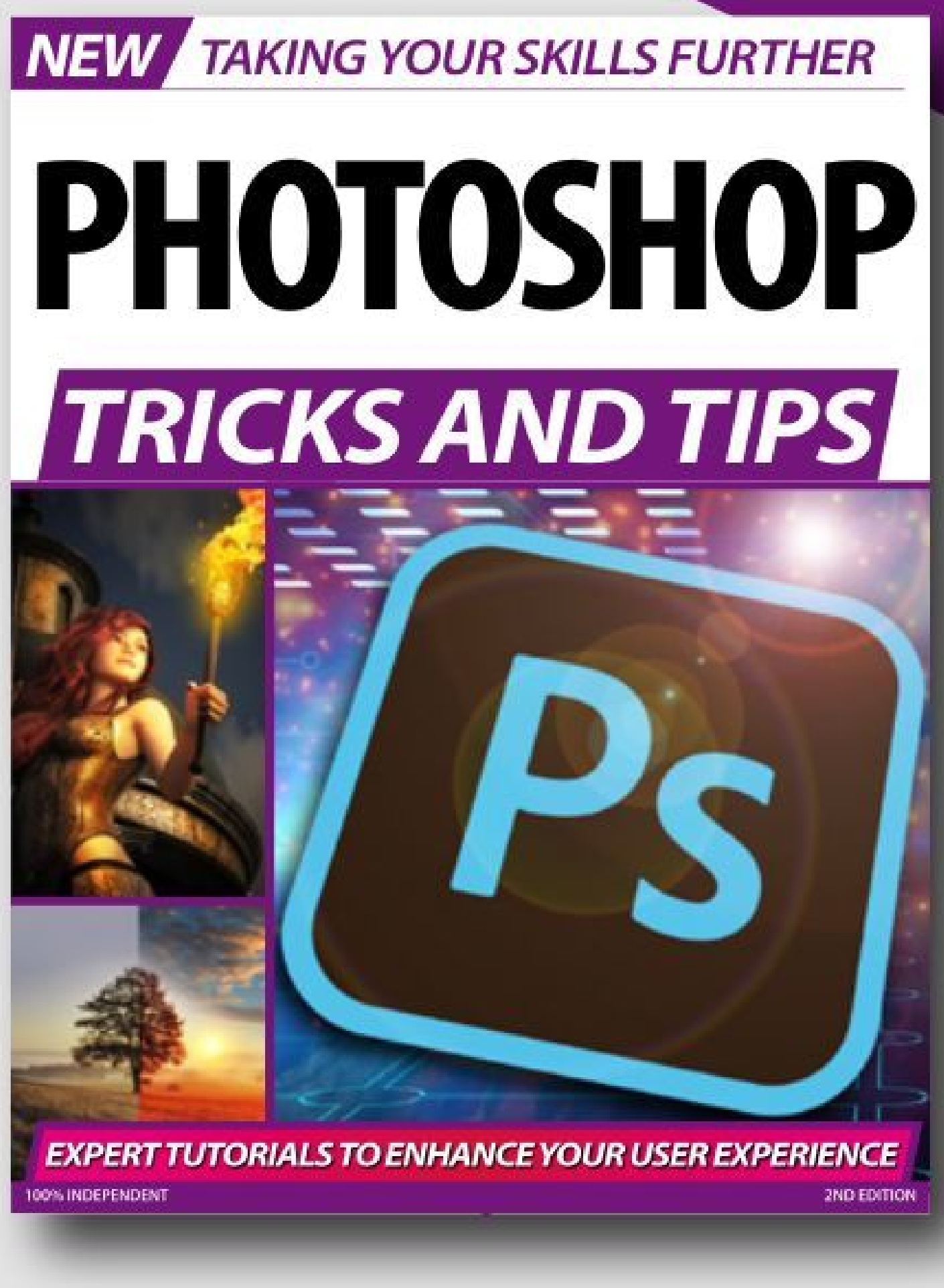
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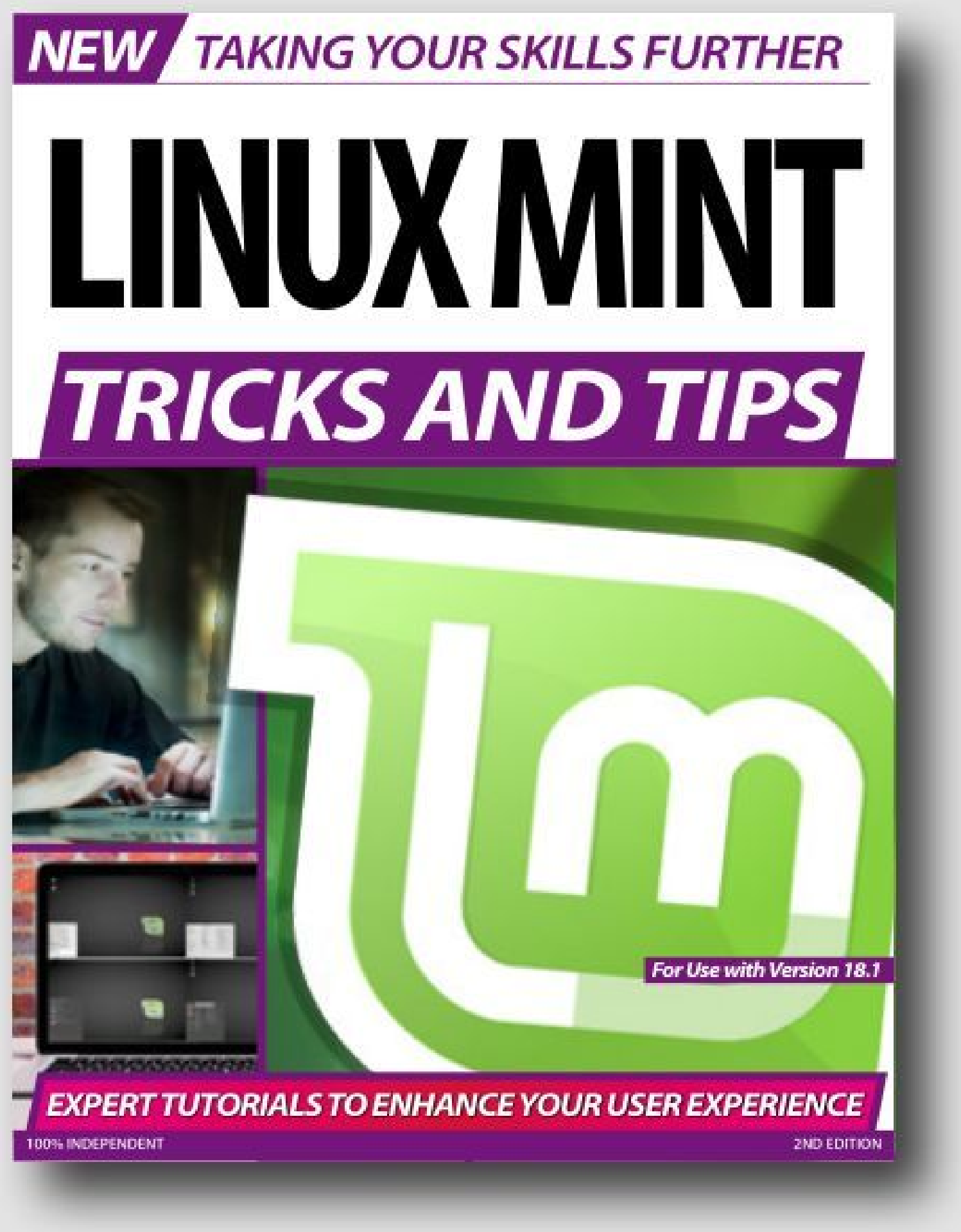
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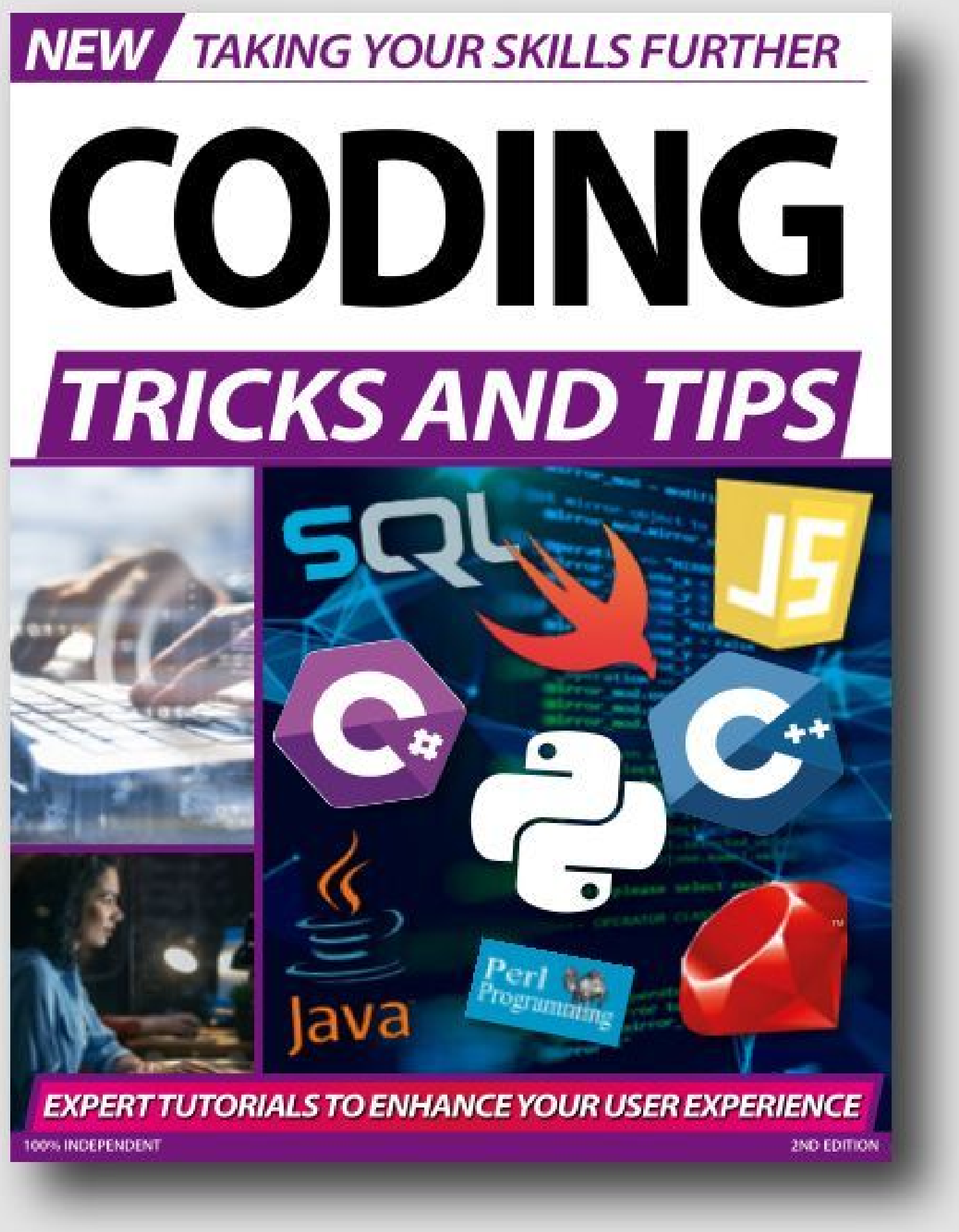
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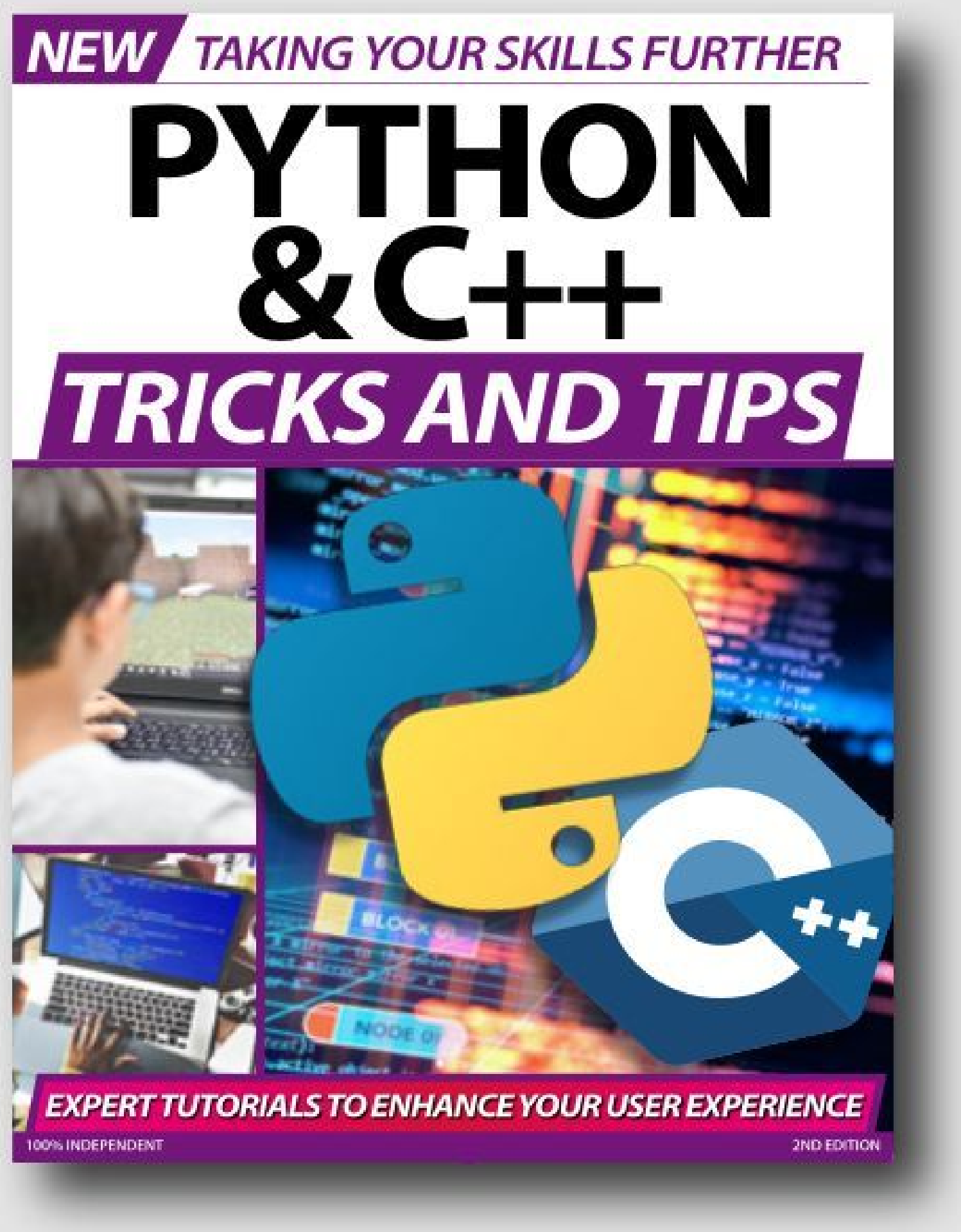
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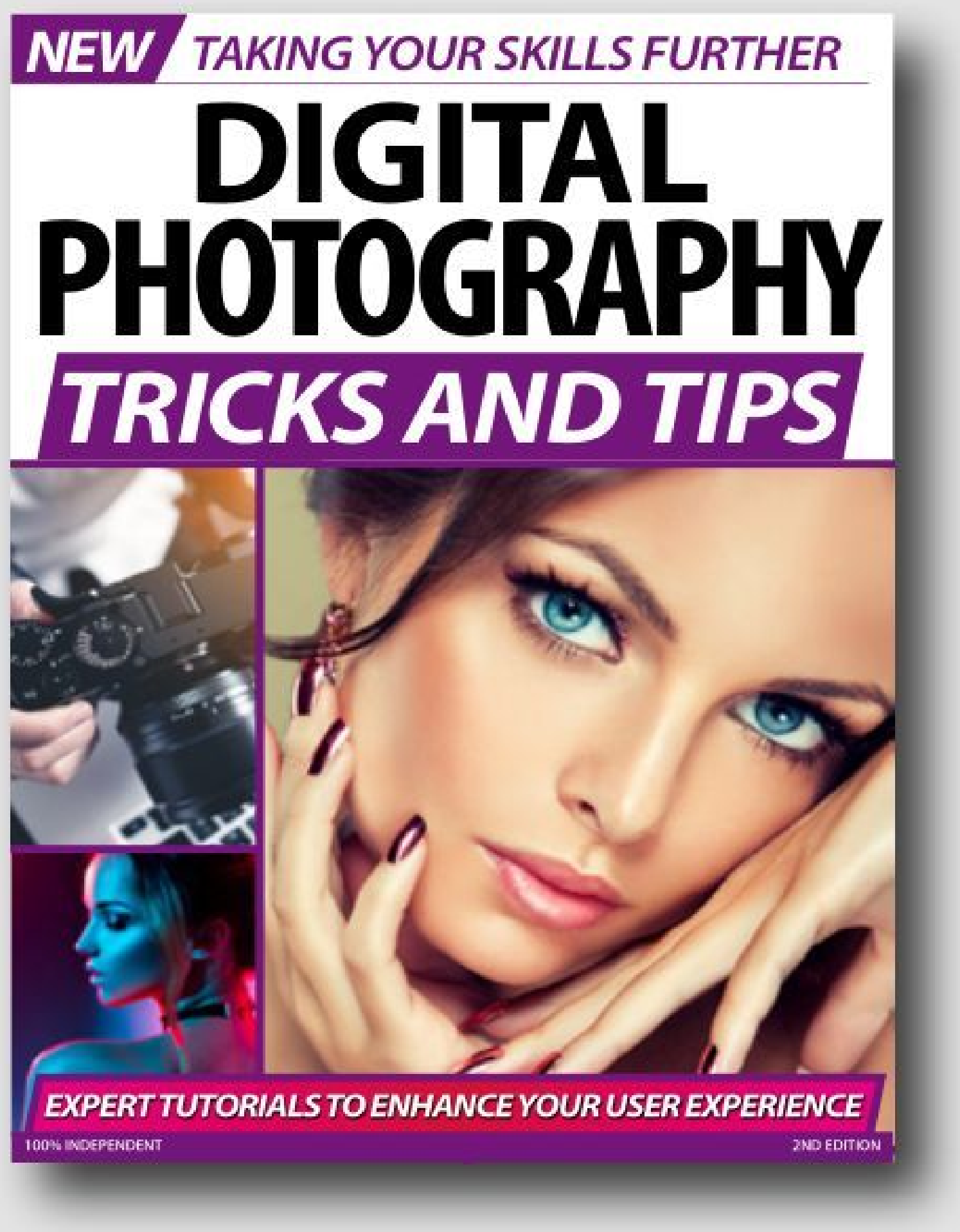
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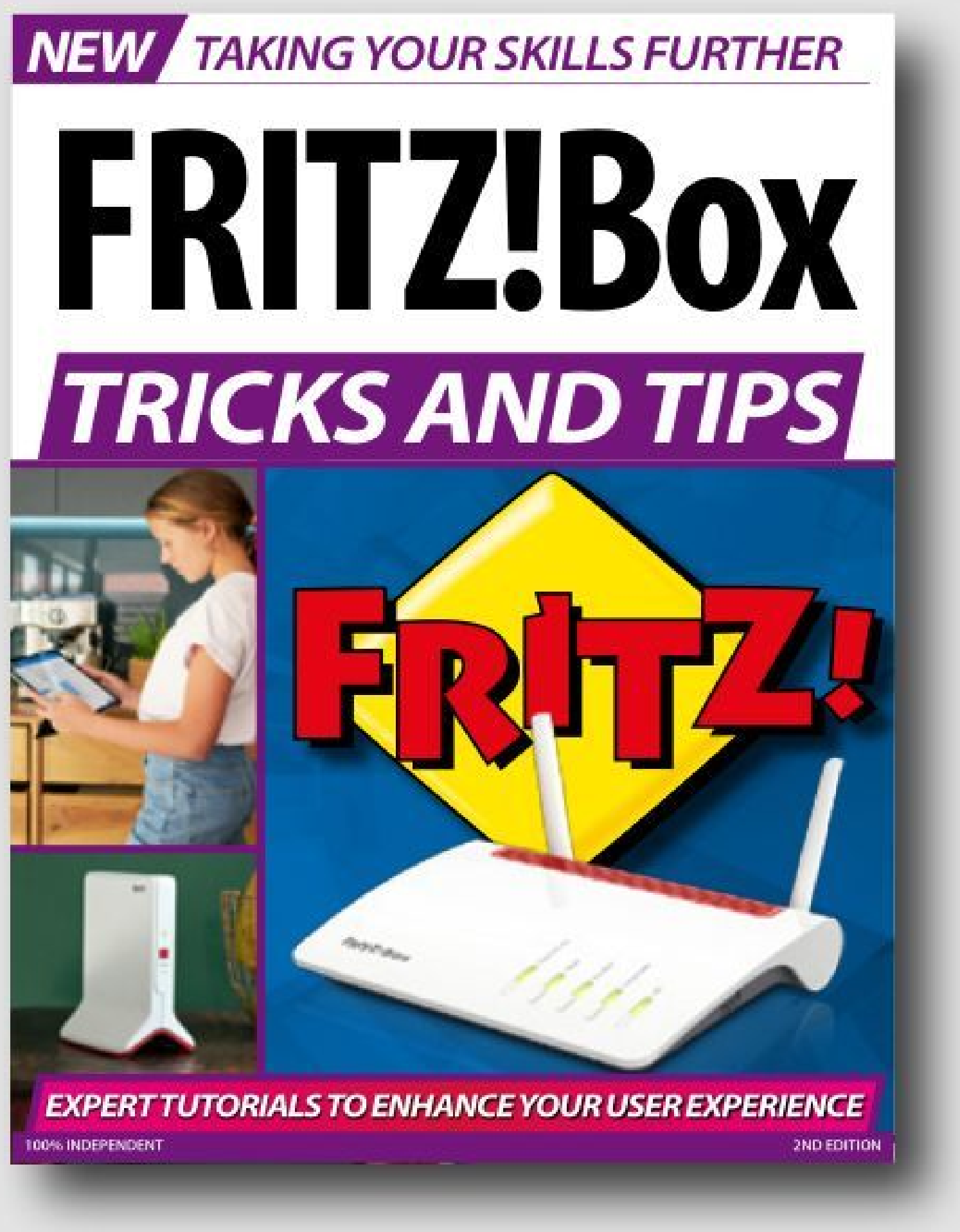
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TRICKS AND TIPS
FRITZ!
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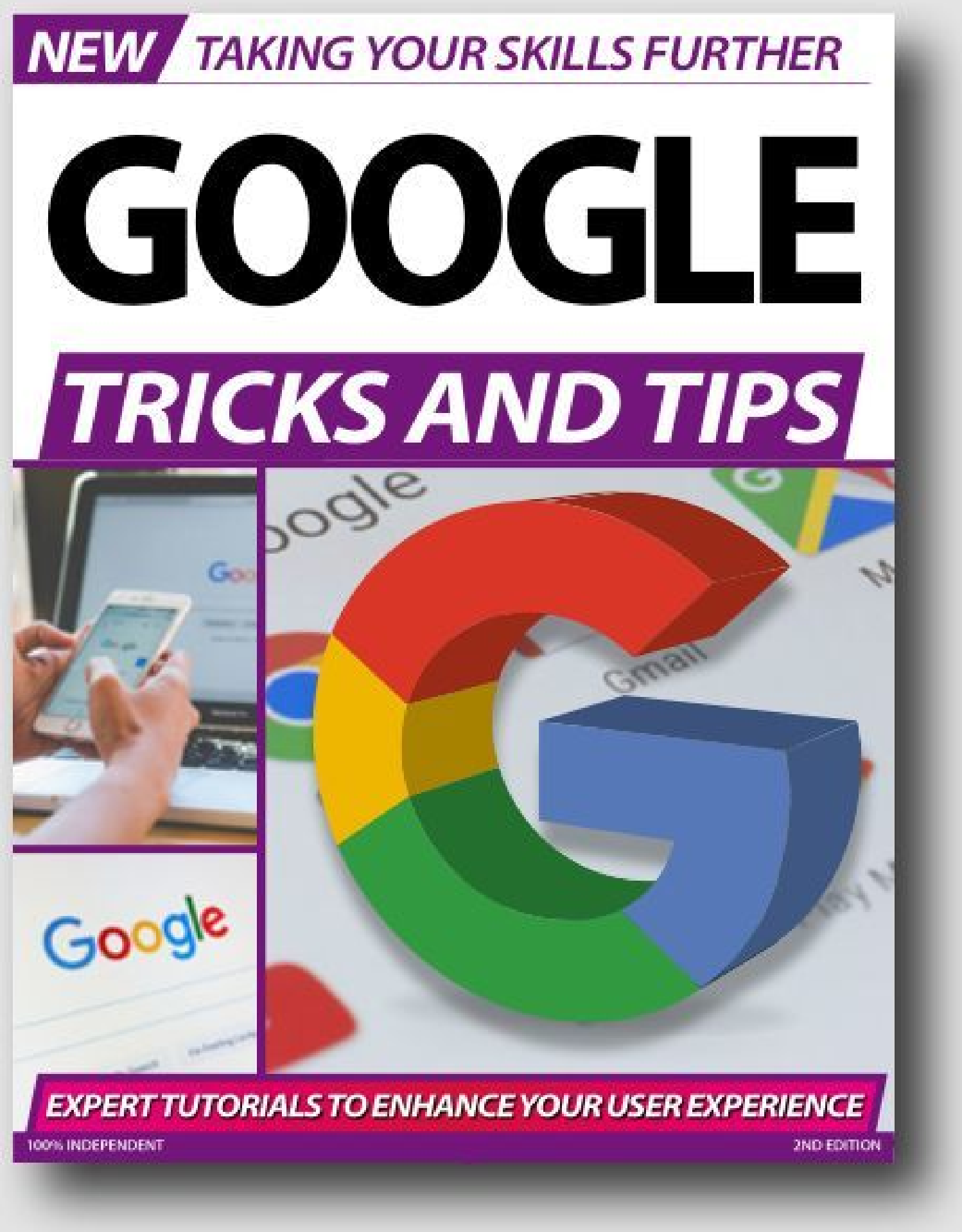
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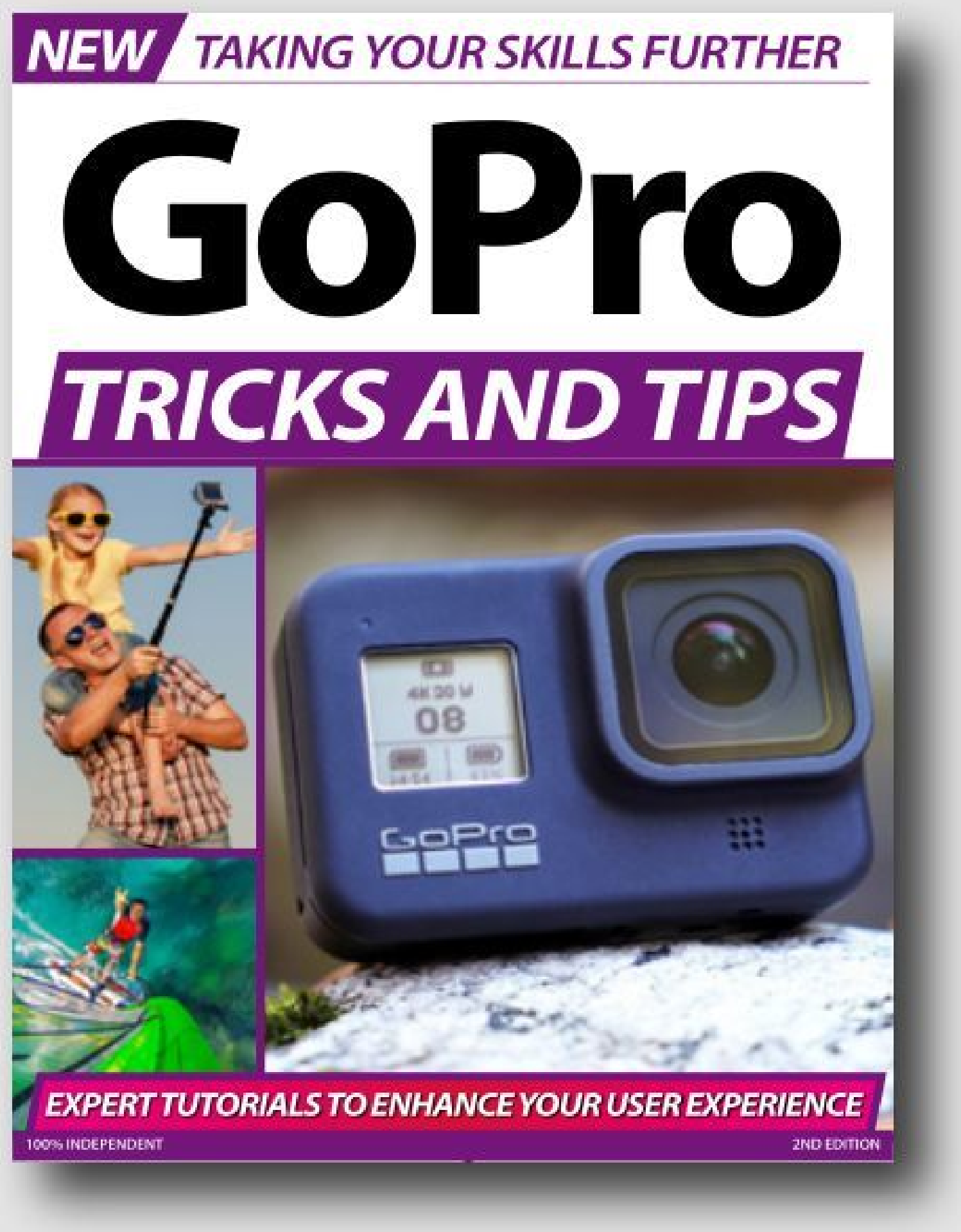
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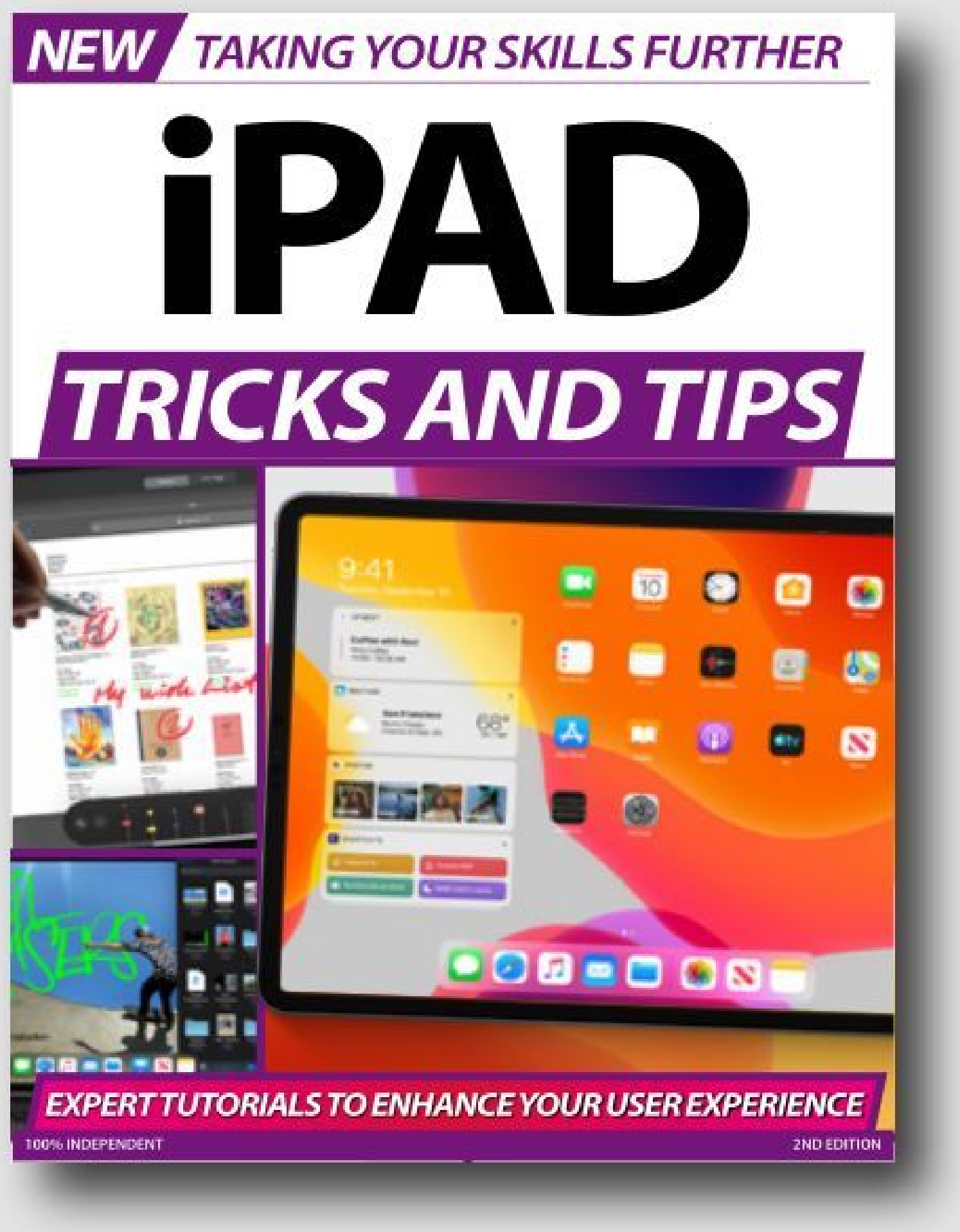
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LINUX MINT

TRICKS AND TIPS

Welcome back… Having completed our exclusive For Beginners digital guidebook, we have taught you all you need to master the basics of your new device, software or hobby.
Yet that's just the start!

Advancing your skill set is the goal of all users of consumer technology and our team of long term industry experts will help you achieve exactly that. Over this extensive series of titles we will be looking in greater depth at how you make the absolute most from the latest consumer electronics, software, hobbies and trends! We will guide you step-by-step through using all the advanced aspects of the technology that you may have been previously apprehensive at attempting. Let our expert guide help you build your understanding of technology and gain the skills to take you from a confident user to an experienced expert.

Over the page our journey continues, and we will be with you at every stage to advise, inform and ultimately inspire you to go further.

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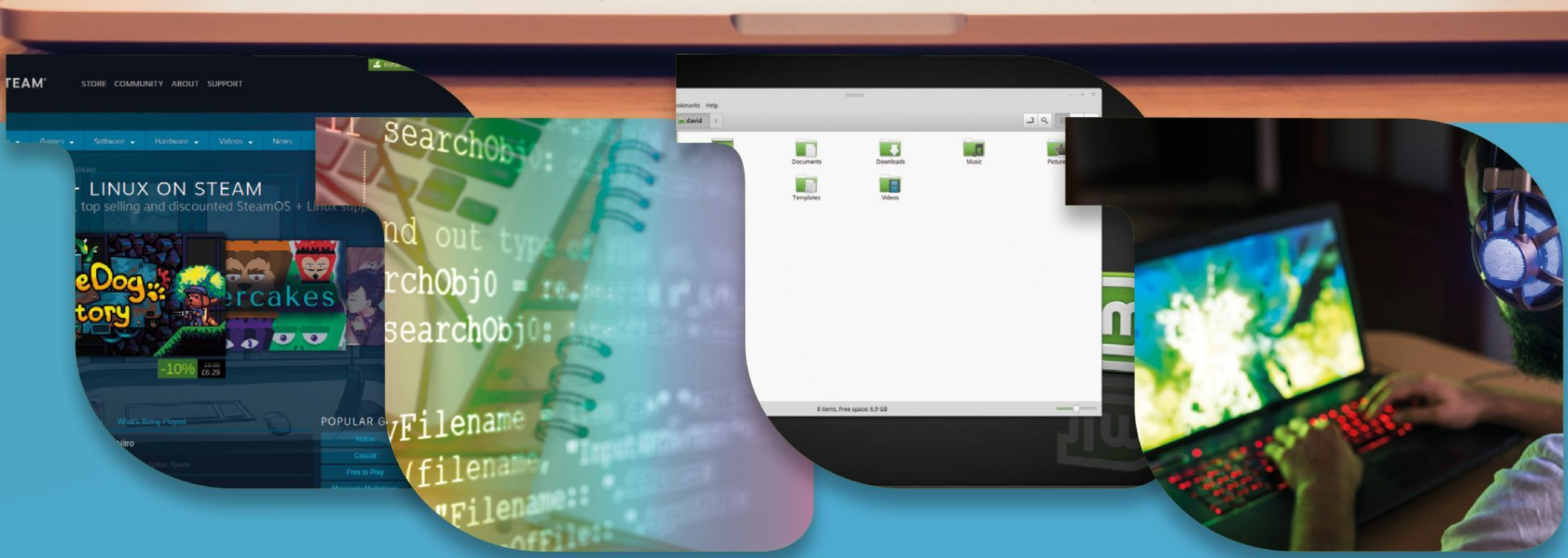

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Linux Mint Apps

The Apps that come preinstalled with Linux Mint will keep most users happy for a long time to come but what if you wanted more? In this next section we'll look at the different ways in which you can go about finding, installing and using more apps. We'll also look at how to remote access your Mint desktop and back up your valuable data.

Default Linux Mint Apps

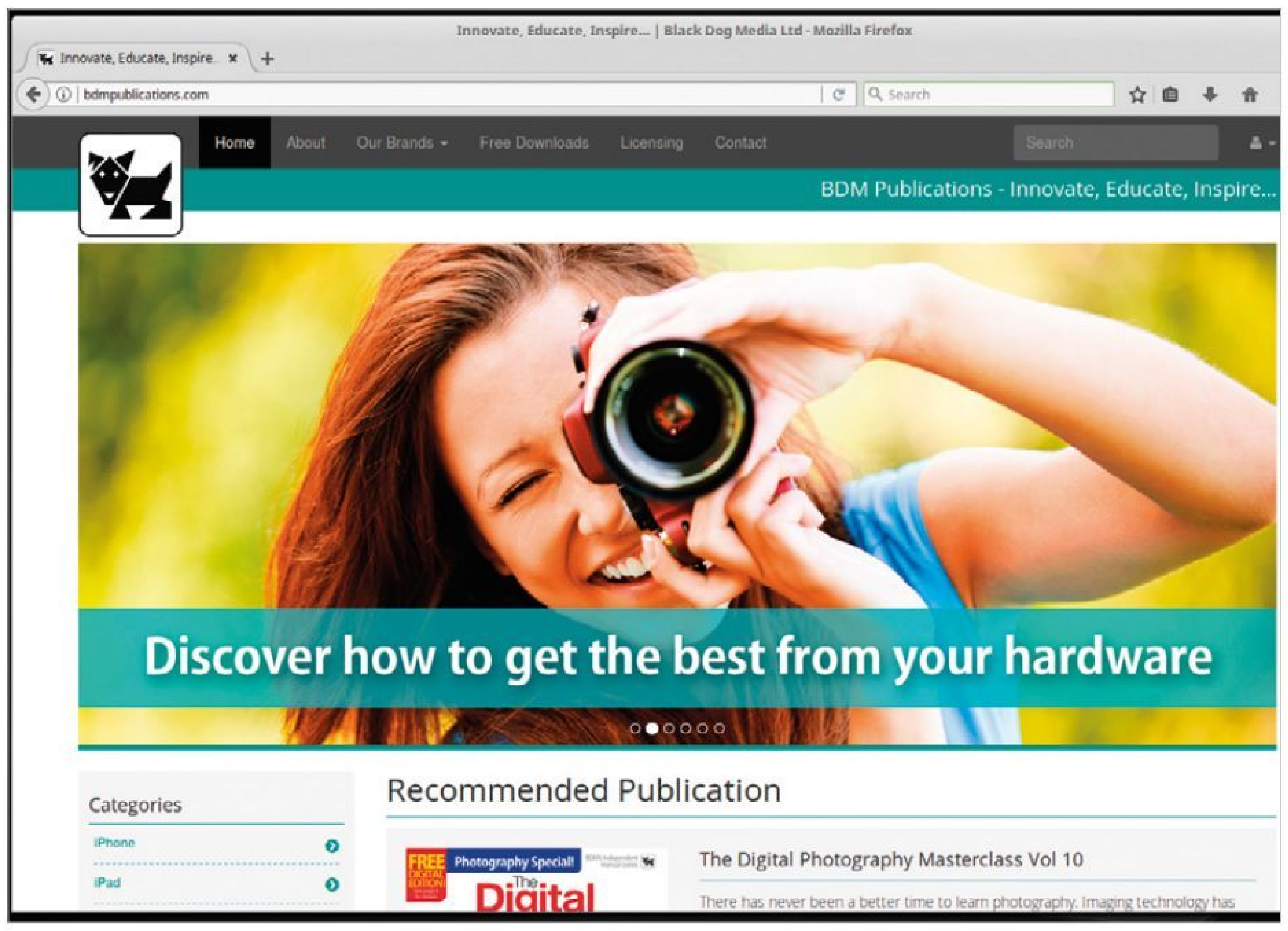
Linux Mint comes packed with hundreds of apps that cover a wide range of topics. There are far too many to mention here and, as you will see in the next section, you can install thousands more. For now though, here are ten of our favourite default Linux Mint apps.

TOP TEN APPS

Docks are used to launch applications, shortcuts, locations and even run command-line programs. They can be simple, or amazingly complex, and most look great when blended with an appropriate theme.

APP 1

Linux Mint's web browser of choice is Firefox. Version 50.0.2 is packaged with the Mint installation but after a quick system update you can be running the latest version. Firefox may not be everyone's choice of browser but in Mint it's quick and gets the job done.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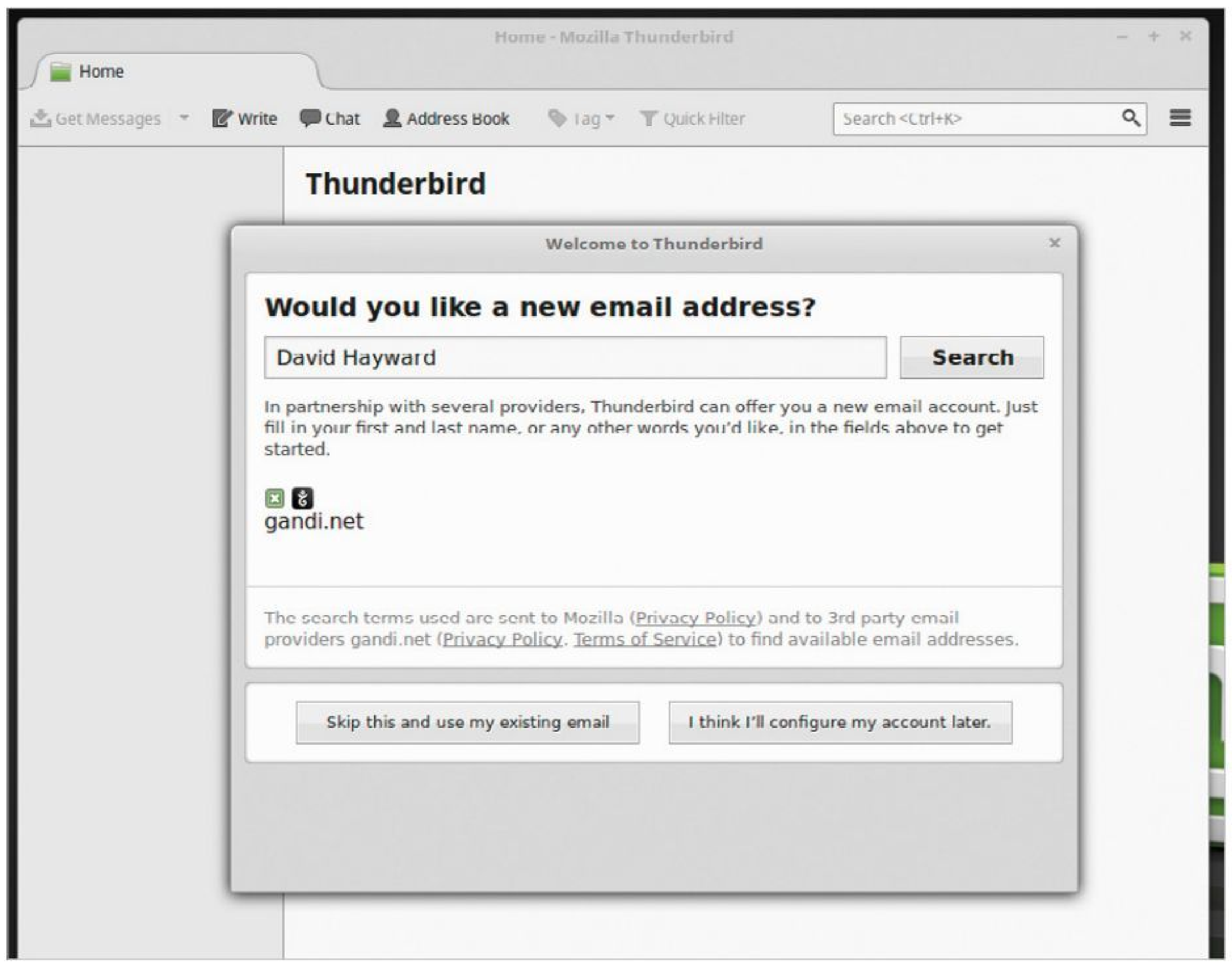
Categories
iPhone
iPad
Recommended Publication
The Digital Photography Masterclass Vol 10

APP 2

Along with Firefox, Linux Mint uses Mozilla's Thunderbird email client as its default mail app. Thunderbird is a fully-featured email client that's fast and easy to set up and use. You can find it in the Internet category off the Mint Menu.


Home - Mozilla Thunderbird
Home
Get Messages
Write
Chat
Address Book
Tag
Quick Filter
Search <Ctrl+K>
Thunderbird
Welcome to Thunderbird
Search
Skip this and use my existing email
I think I'll configure my account later.

Would you like a new email address?

David Hayward

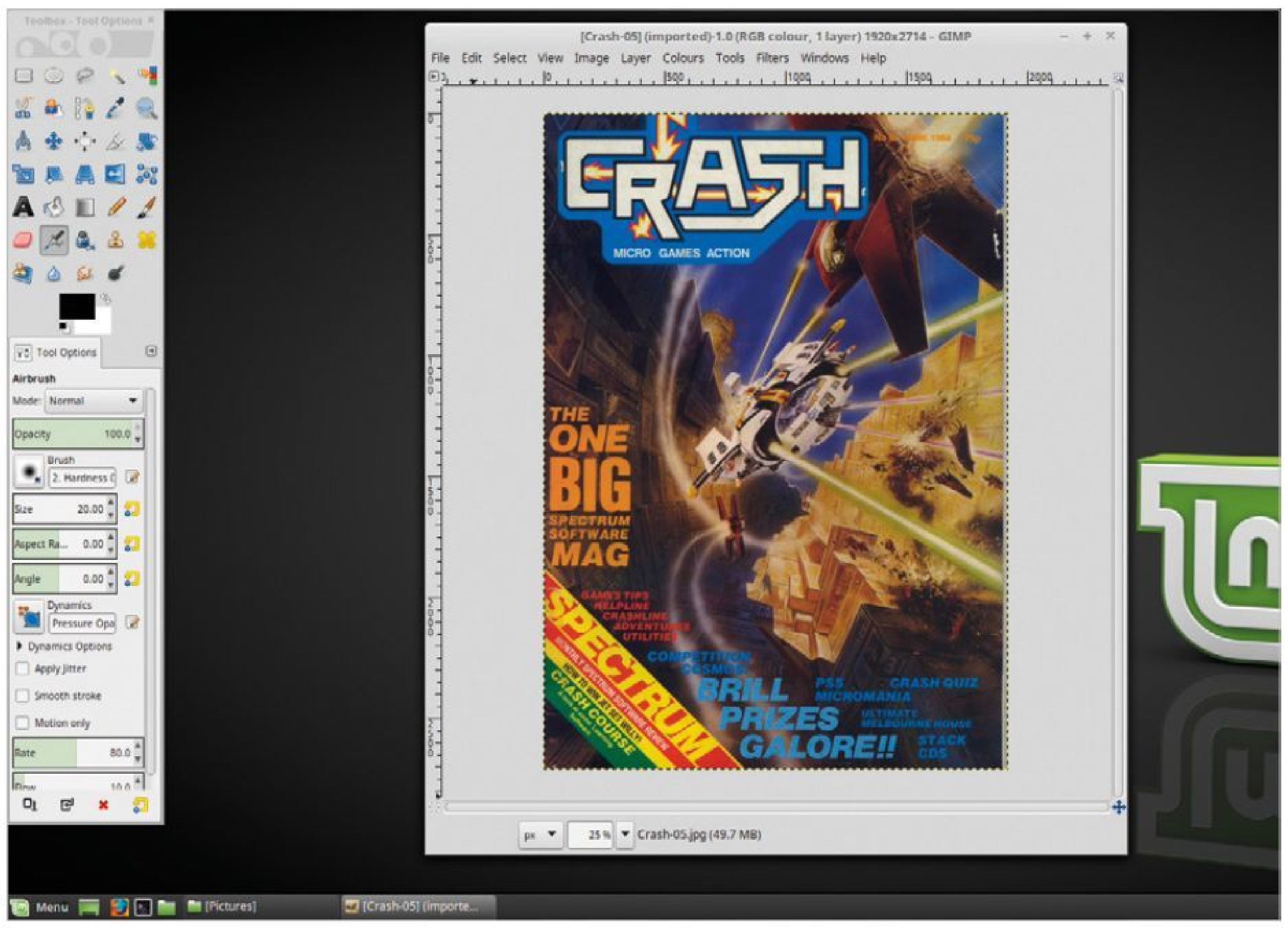
In partnership with several providers, Thunderbird can offer you a new email account. Just fill in your first and last name, or any other words you'd like, in the fields above to get started.

gandi.net

The search terms used are sent to Mozilla (Privacy Policy) and to 3rd party email providers gandi.net (Privacy Policy, Terms of Service) to find available email addresses.

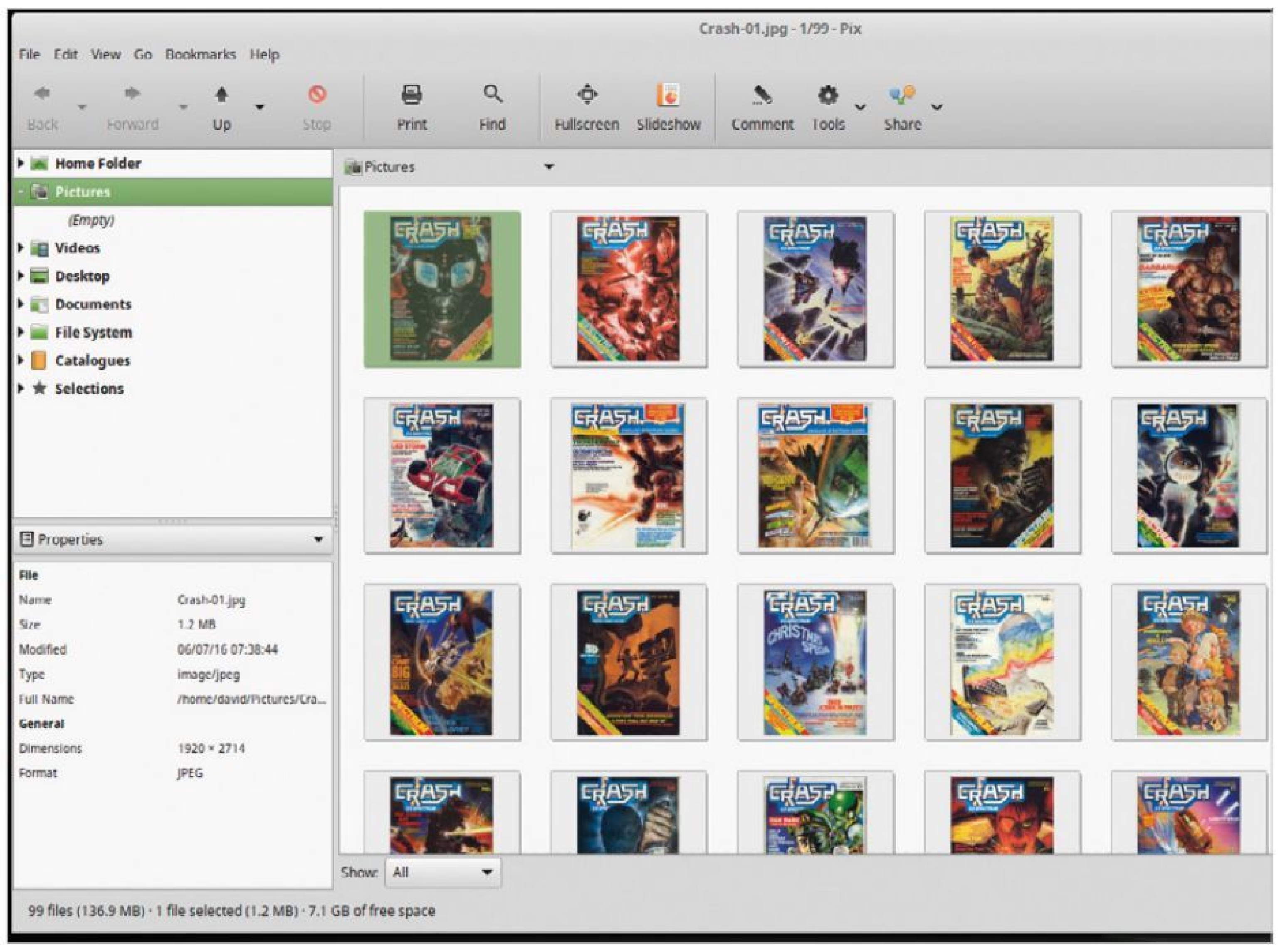
APP 3

In terms of graphics and image editing, you won't find a better open source app than GIMP. Whilst it can be difficult to master, GIMP is one of the best picture editing packages available today. The latest version come preinstalled with Linux Mint and it can be found in the Graphics category in the Menu.

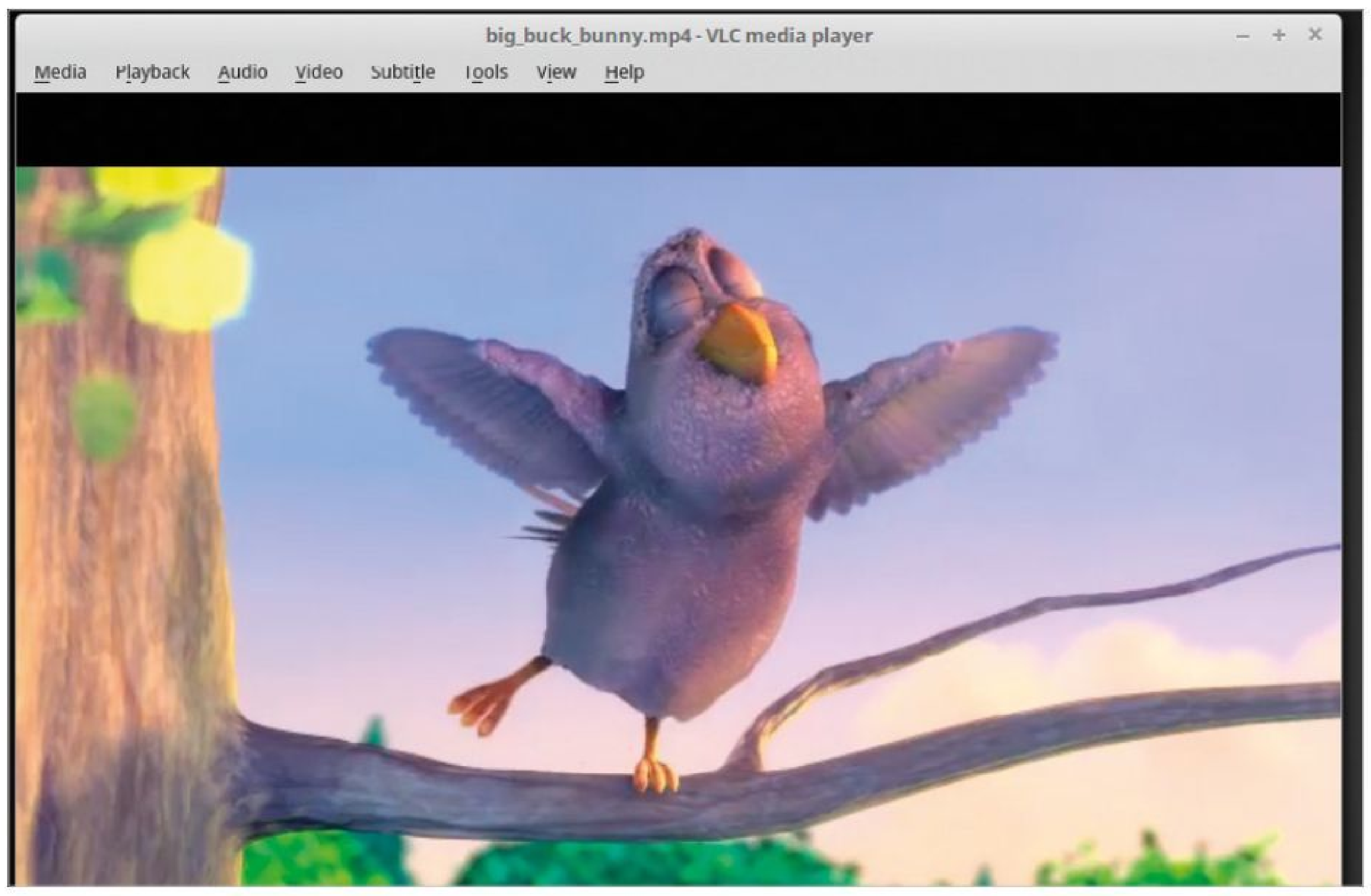

File Edit Select View Image Layer Colours Tools Filters Windows Help
Tool Options
Airbrush
Opacity
Size
Angle
Rate
CRASH
Menu

APP 4

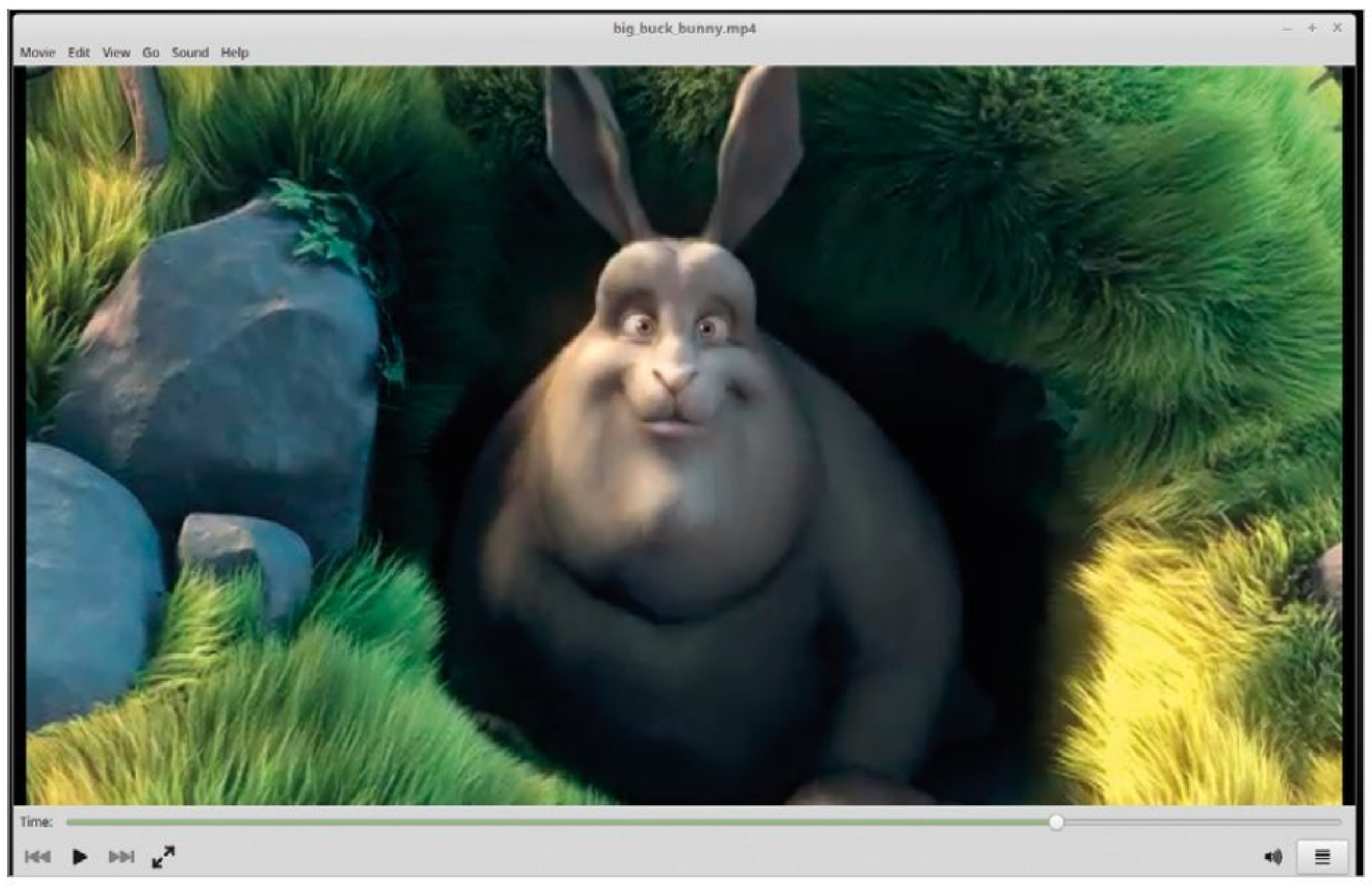
Linux Mint also offers Pix, an image viewer and browser with some light editing capabilities. With Pix you're able to view, print, share, categorise and edit your picture collection. You can create slideshows, convert from one image file type to another and write comments on your images.


Crash-01.jpg - 1/99 - Pix
File Edit View Go Bookmarks Help
Back
Forward
Up
Stop
Print
Find
Fullscreen
Slideshow
Comment
Tools
Share
Home Folder
Pictures
Videos
Desktop
Documents
File System
Catalogues
Selections
Properties
99 files (136.9 MB) · 1 file selected (1.2 MB) · 7.1 GB of free space

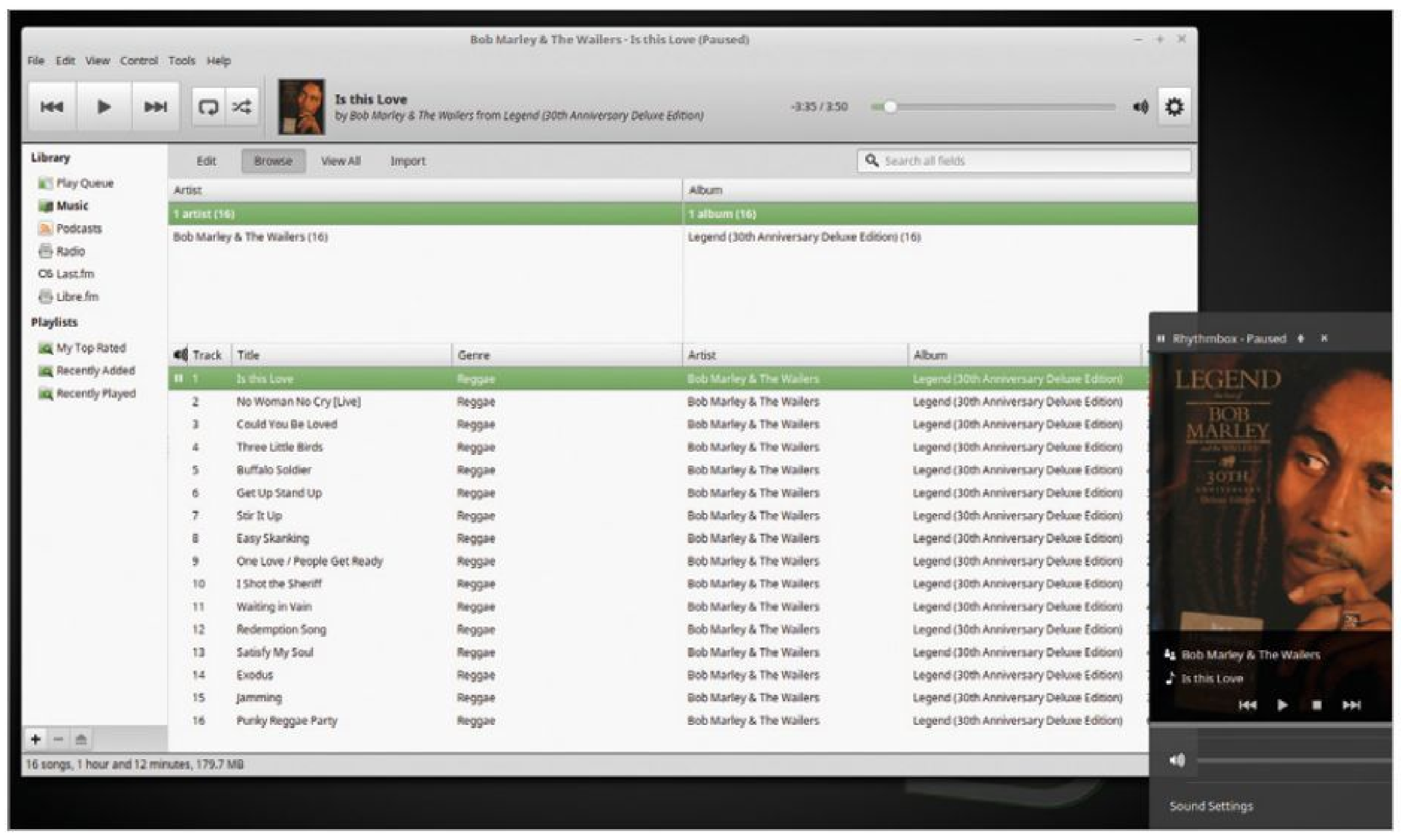
APP 5 VLC is Linux Mint's media playback app of choice and it's an excellent one too. VLC is highly regarded as being one of the best freely available media players available today. It's quick, can playback a huge number of video file types without the need for extra codecs and has some real great features under the hood too.


big_buck_bunny.mp4 - VLC media player
Media
Playback
Audio
Video
Subtitle
Tools
View
Help

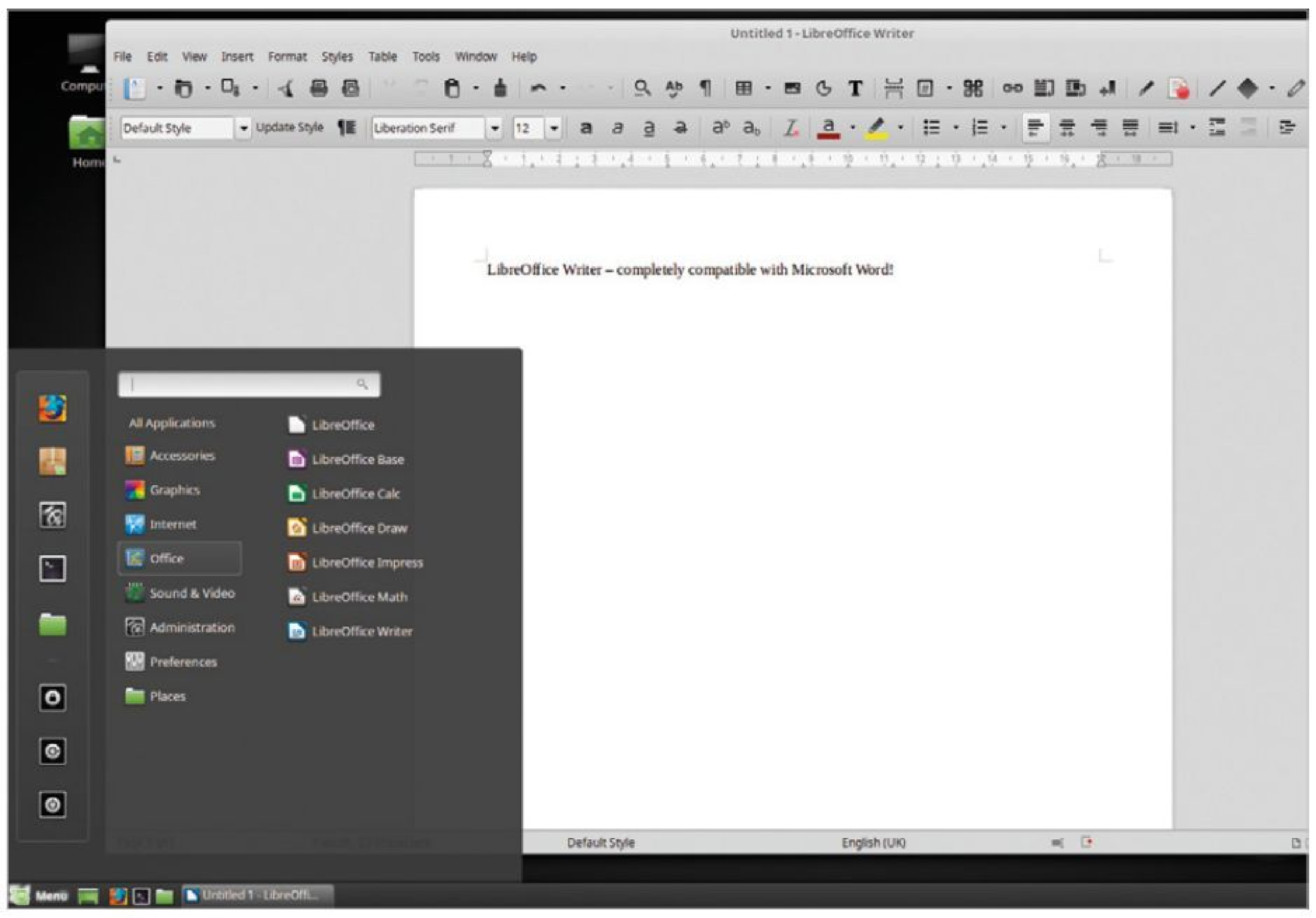
APP 6 Linux Mint also comes bundled with XPlayer, another open source media player. Whilst it's not as comprehensive as VLC, XPlayer is still a highly regarded video app; and thanks to it being quite lightweight, it won't take up a lot of memory either.


big_buck_bunny.mp4
Movie Edit View Go Sound Help
Time:

APP 7 For the purpose of music playback, Linux Mint offers Rhythmbox. It is an excellent music player that not only plays a variety of music file types but also handles Internet radio, podcasts and can transfer music to and from MP3 players, much in the same way as iTunes.

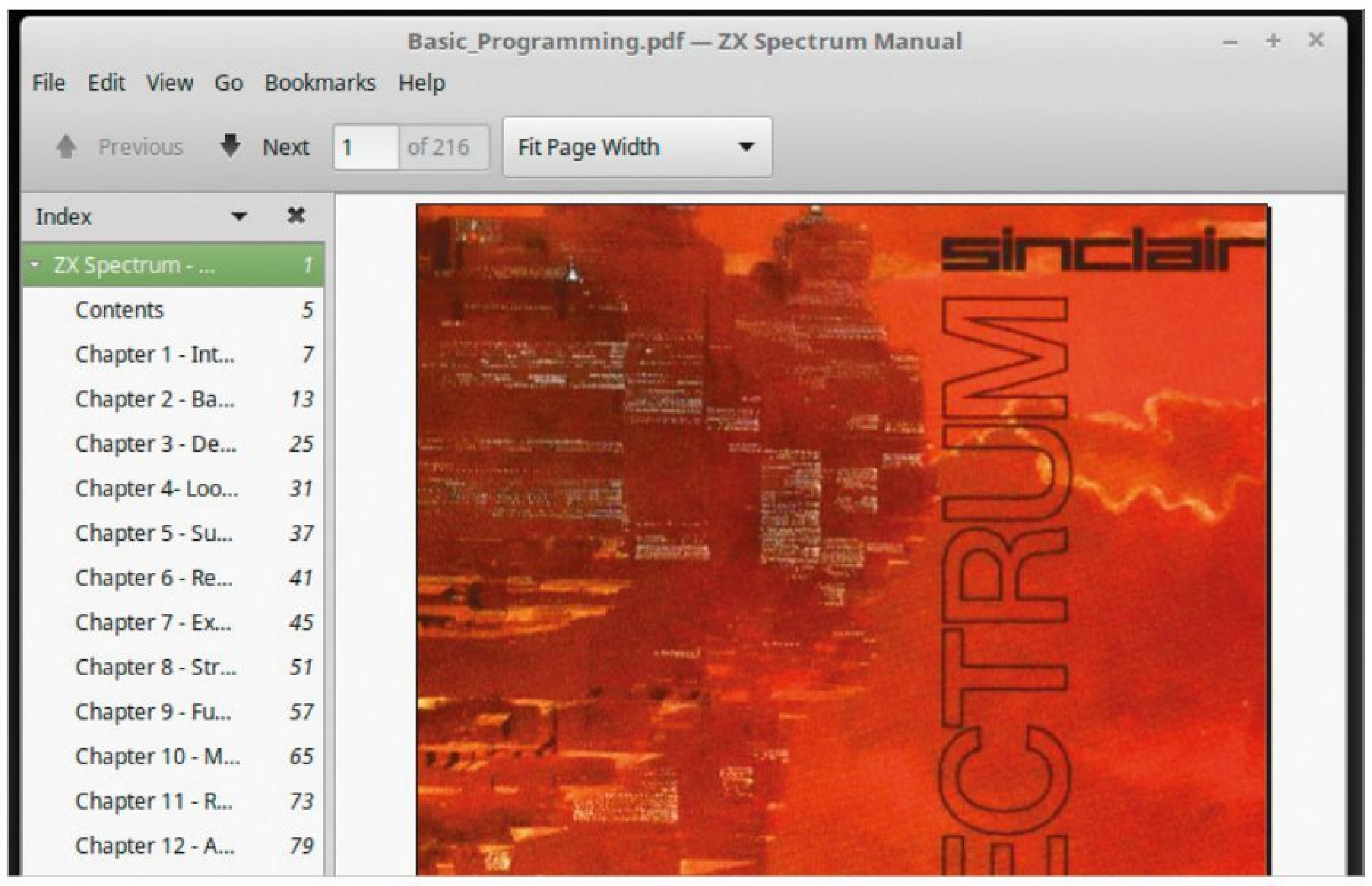

Bob Marley & The Wailers - Is this Love (Paused)
Is this Love
Library
Play Queue
Music
Podcasts
Radio
Last.fm
Libre.fm
Playlists
My Top Rated
Recently Added
Recently Played
Artist
Album
Track
Title
Genre
16 songs, 1 hour and 12 minutes, 179.7 MB

APP 8 As for productivity, Linux Mint comes preinstalled with LibreOffice 5. This consists of LibreOffice Writer, Draw, Calc, Base, Impress and Math, all of which are Microsoft Office compatible. In fact, this entire manual was written using LibreOffice Writer.

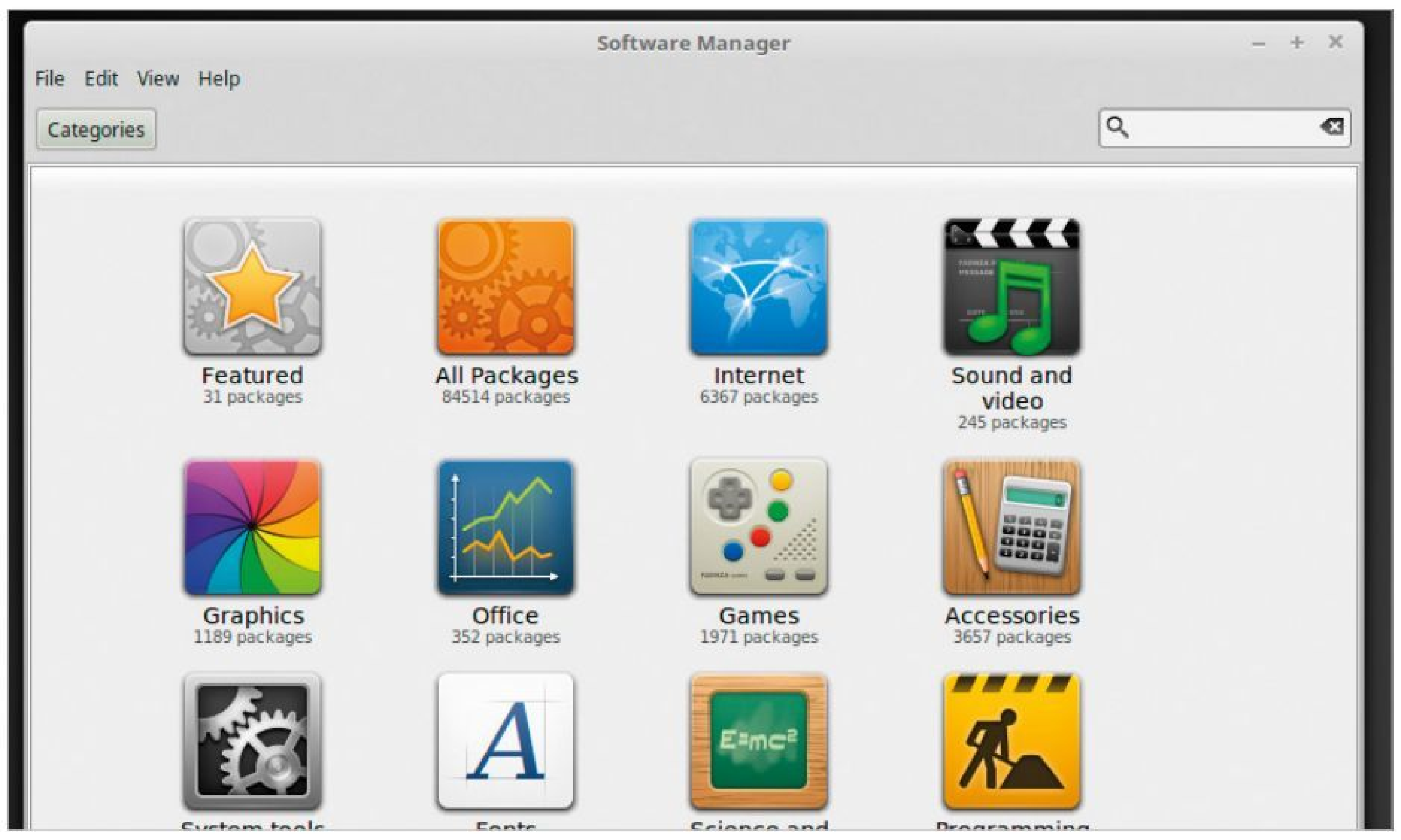

LibreOffice Writer – completely compatible with Microsoft Word!

Untitled 1 - LibreOffice Writer
File Edit View Insert Format Styles Table Tools Window Help
Default Style
Liberation Serif
12
All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
LibreOffice
LibreOffice Base
LibreOffice Calc
LibreOffice Draw
LibreOffice Impress
LibreOffice Math
LibreOffice Writer
English (UK)
Menu

APP 9 LibreOffice can easily handle PDF files, and even create PDFs, but if you simply require a PDF file viewer then Xreader has this covered. It opens PDFs, ePub documents, images, Comic Books, PostScript documents and many more.


Basic_Programming.pdf — ZX Spectrum Manual
File Edit View Go Bookmarks Help
Previous
Next
1
of 216
Fit Page Width
Index
ZX Spectrum - ... 1
Contents 5
Chapter 1 - Int... 7
Chapter 2 - Ba... 13
Chapter 3 - De... 25
Chapter 4- Loo... 31
Chapter 5 - Su... 37
Chapter 6 - Re... 41
Chapter 7 - Ex... 45
Chapter 8 - Str... 51
Chapter 9 - Fu... 57
Chapter 10 - M... 65
Chapter 11 - R... 73
Chapter 12 - A... 79
sinclair
ECTRUM

APP 10 Finally, and an app we'll look at next, we have the Software Manager. This is the main place to look for new apps to add to Linux Mint; at the time of writing it has 84,241 packages available to install. We're confident there is something in there for you.


Software Manager
File Edit View Help
Categories
Featured
31 packages
All Packages
84514 packages
Internet
6367 packages
Sound and video
245 packages
Graphics
1189 packages
Office
352 packages
Games
1971 packages
Accessories
3657 packages

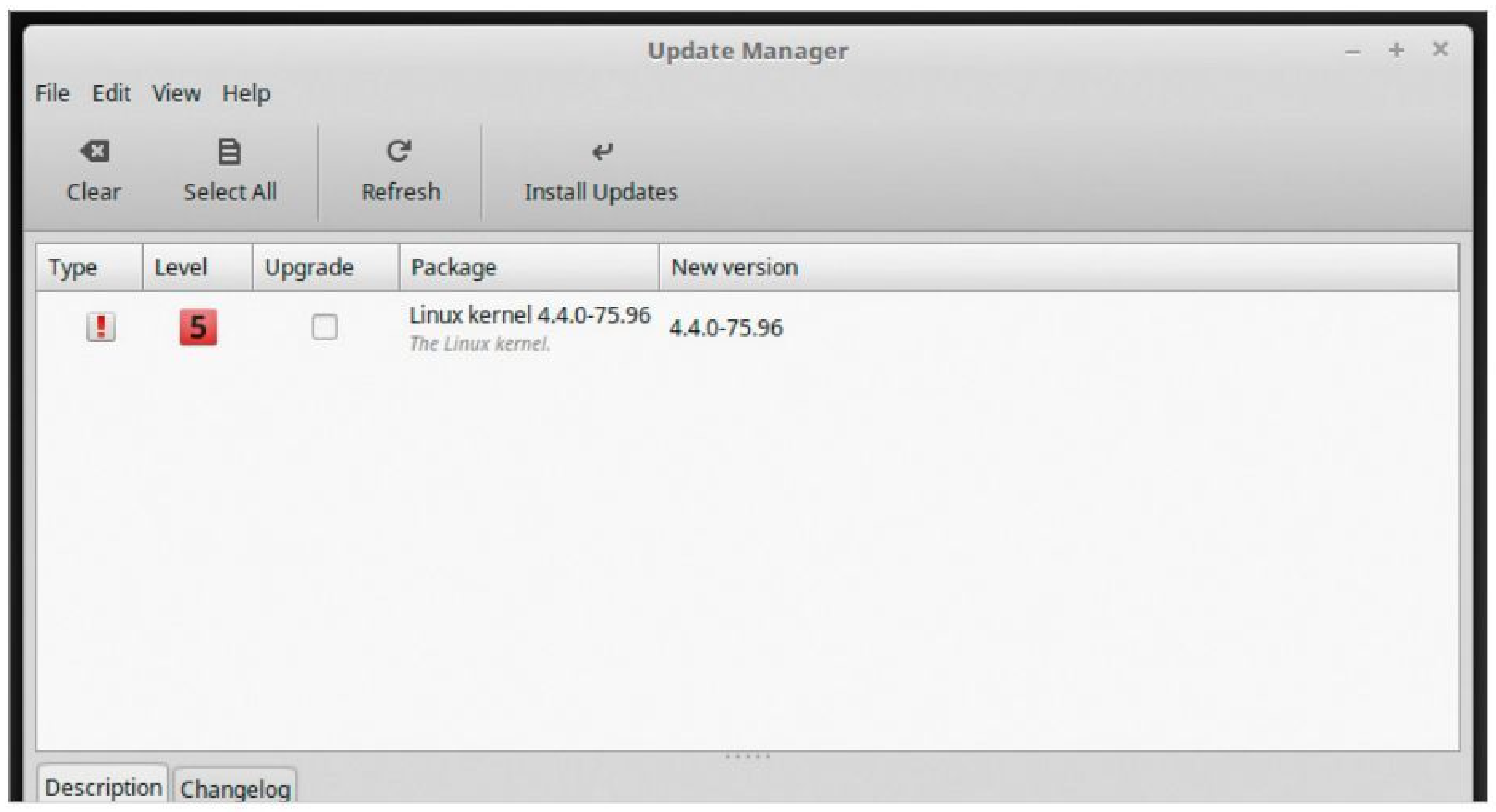
Introduction to the Software Manager

The Linux Mint Software Manager is a one-stop console where you can browse, download and install tens of thousands of different apps. You can find apps for Science, Education, Programming, Games, Video and Music, Graphics and more.

APPS GALORE!

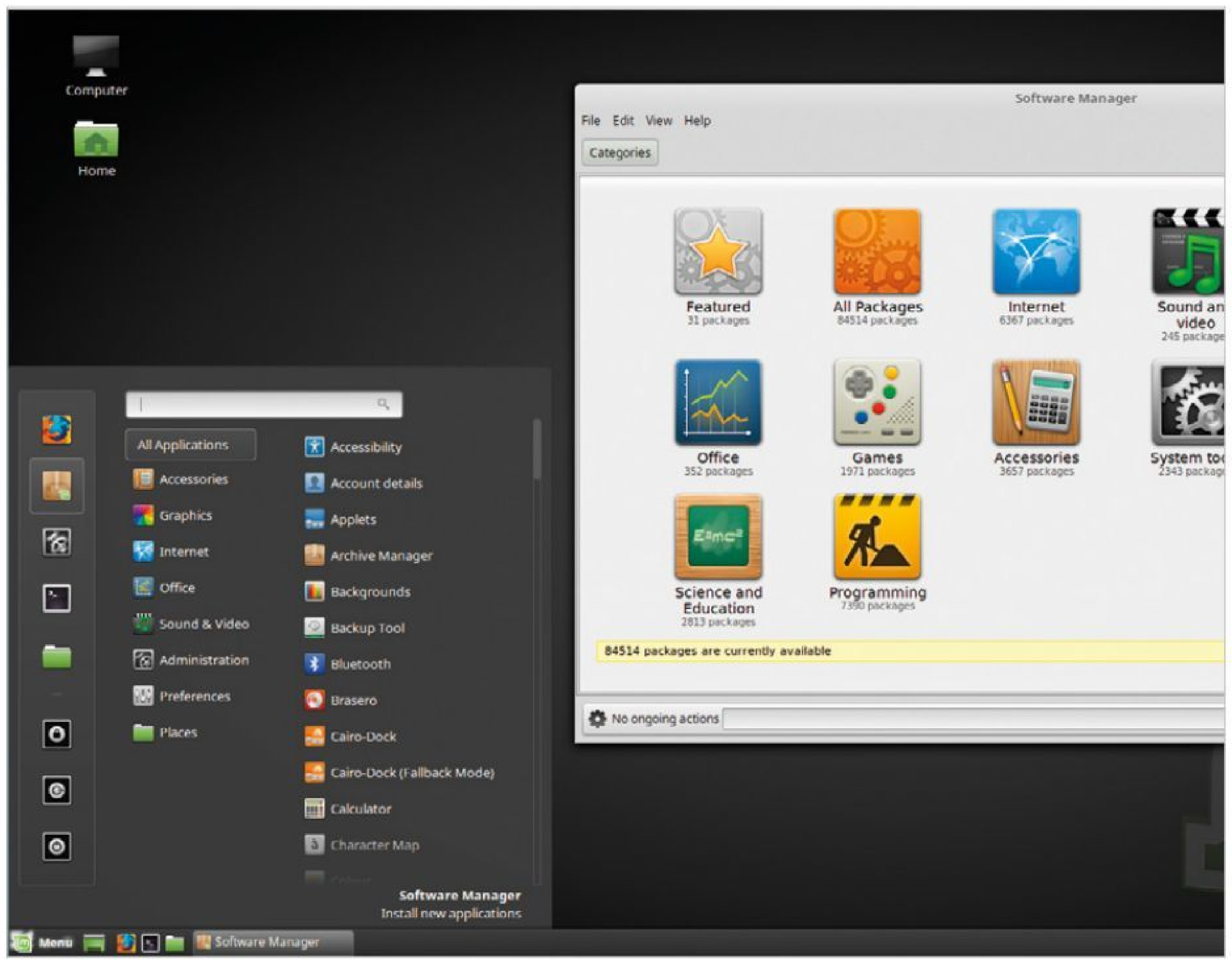
Before we get into the nitty gritty of how to install an app from the Software Manager, it's worth spending a moment or two just looking around it and seeing what's available.

STEP 1 As we've done in previous sections, before we open the Software Manager it's worth making sure that Linux Mint is up to date and has the latest versions of its apps and packages available. Once again, click the shield to launch Update Manager, and apply any necessary updates.

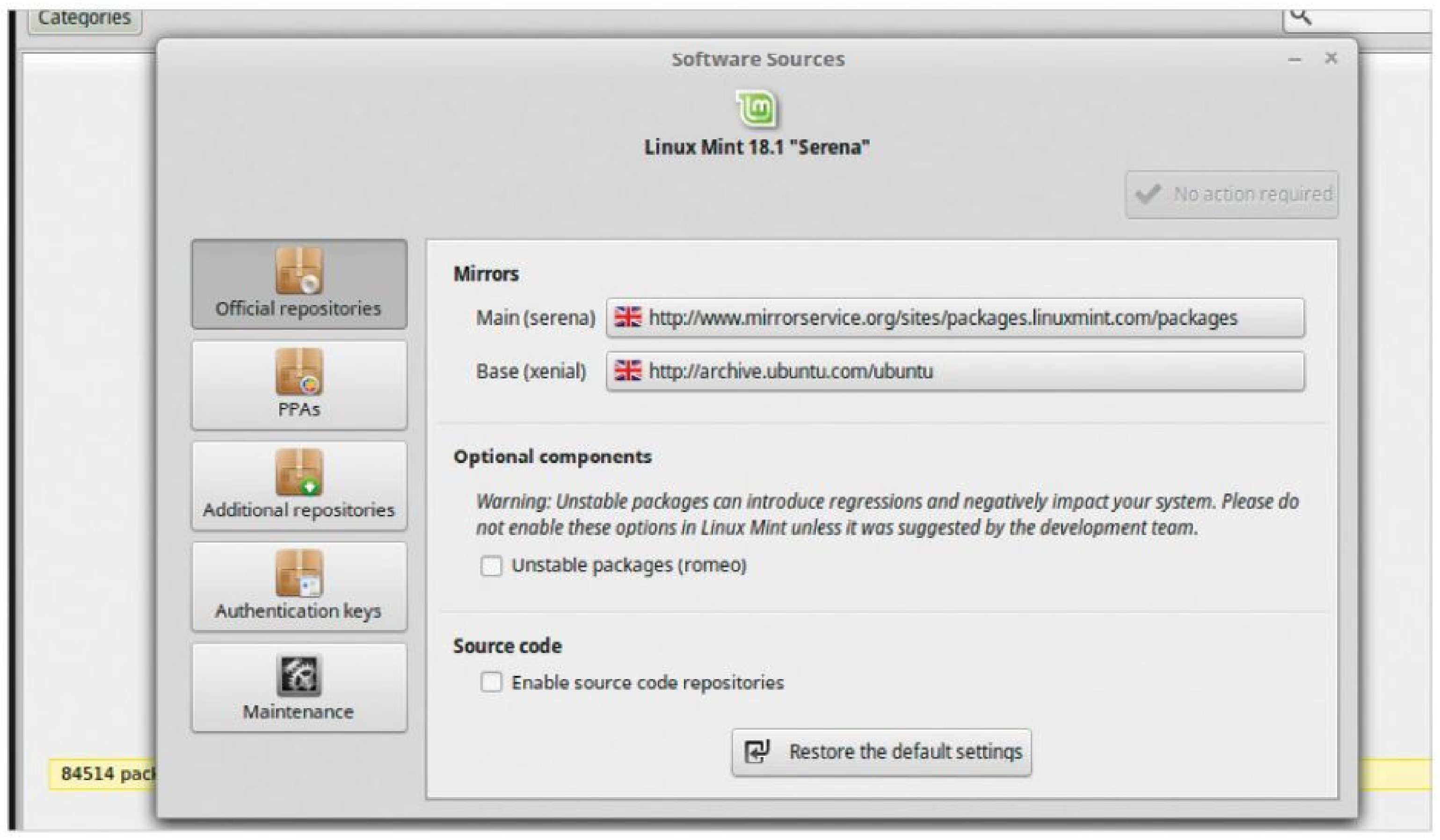

Update Manager
File Edit View Help
Clear
Select All
Refresh
Install Updates
Description
Changelog

Type	Level	Upgrade	Package	New version
!	5	☐	Linux kernel 4.4.0-75.96 *The Linux kernel.*	4.4.0-75.96

STEP 2 Restart Linux Mint if needed and when you're ready, find the Software Manager in the Mint Menu, up the left-hand side under the Firefox icon. You need to enter your password when you launch it.


Computer
Home
Software Manager
File Edit View Help
Categories
Featured
31 packages
All Packages
84514 packages
Internet
6367 packages
Sound and video
245 packages
Office
352 packages
Games
1971 packages
Accessories
3657 packages
System tools
2343 packages
Science and Education
2813 packages
Programming
7390 packages
84514 packages are currently available
No ongoing actions
All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Accessibility
Account details
Applets
Archive Manager
Backgrounds
Backup Tool
Bluetooth
Brasero
Cairo-Dock
Cairo-Dock (Fallback Mode)
Calculator
Character Map
Software Manager
Install new applications
Menu
Software Manager

STEP 3 The password is required because you're going to be doing some administrator level stuff here, chiefly installing new apps. You are also able to change the Software Sources and include additional installations servers, called repositories.


Categories
Software Sources
Linux Mint 18.1 "Serena"
No action required
Official repositories
PPAs
Additional repositories
Authentication keys
Maintenance
Mirrors
Optional components
Source code
Restore the default settings
84514 pack

Main (serena) http://www.mirrorservice.org/sites/packages.linuxmint.com/packages

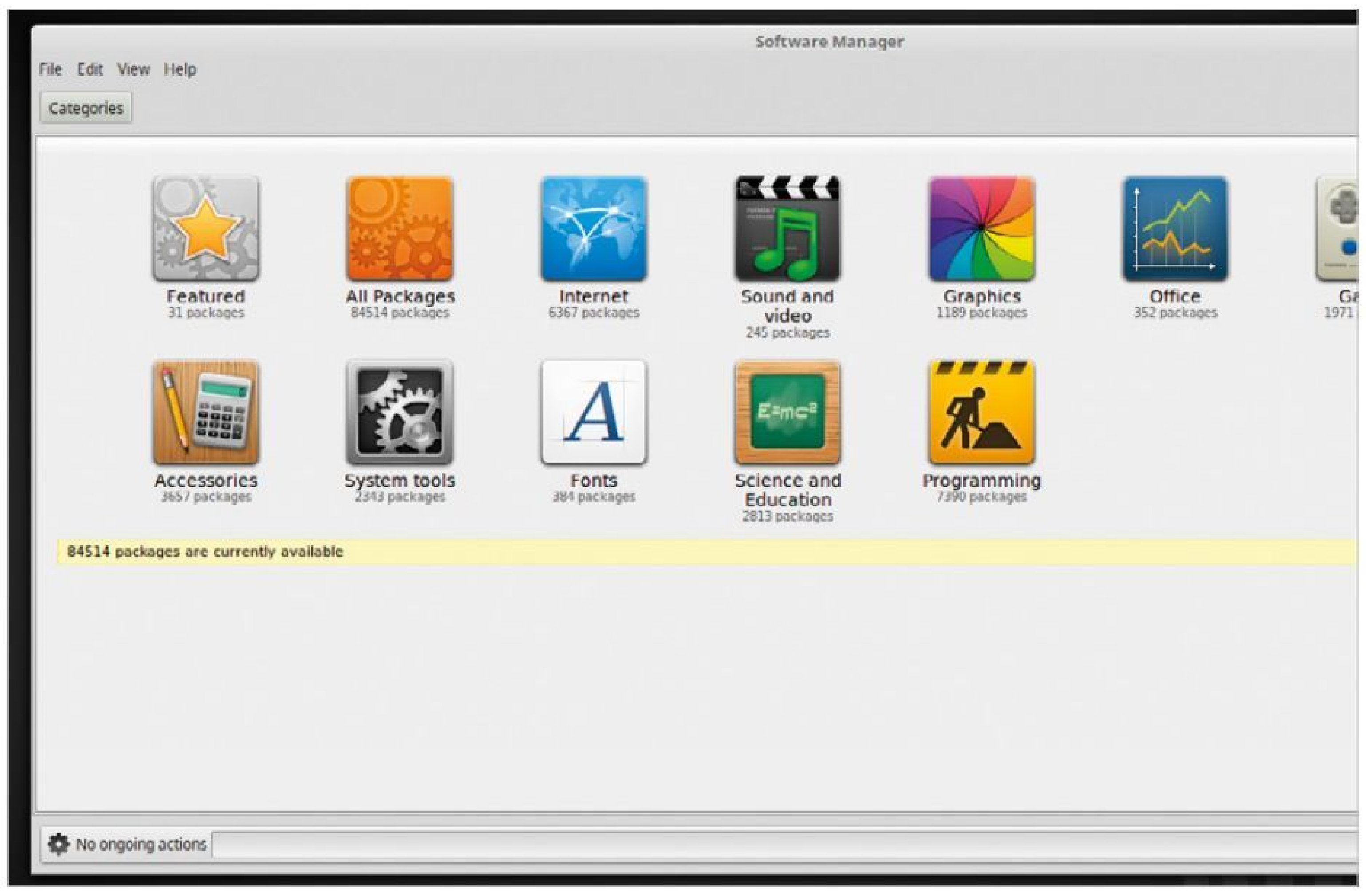
Base (xenial) http://archive.ubuntu.com/ubuntu

Warning: Unstable packages can introduce regressions and negatively impact your system. Please do not enable these options in Linux Mint unless it was suggested by the development team.

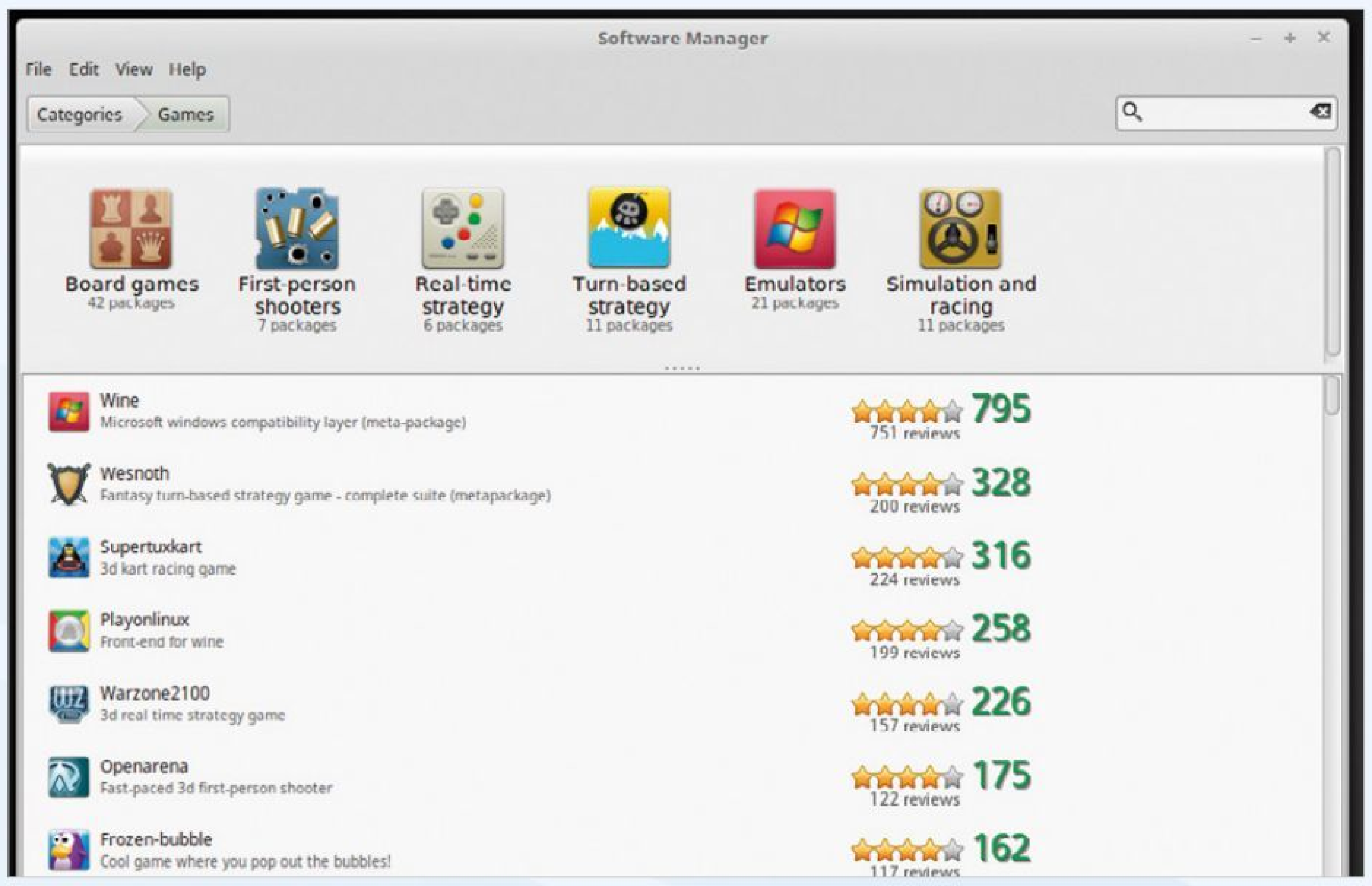
☐ Unstable packages (romeo)

☐ Enable source code repositories

STEP 4 To begin with, you can see that the Software Manager has categorised the available apps: Featured, all Packages, Internet, Sound & Video, Graphics, Office, Games, Accessories, System Tools, Fonts, Science & Education and Programming. Aside from the Featured and All Packages, each category be broken down into the appropriate apps. There's also a search box in the top right of the window.

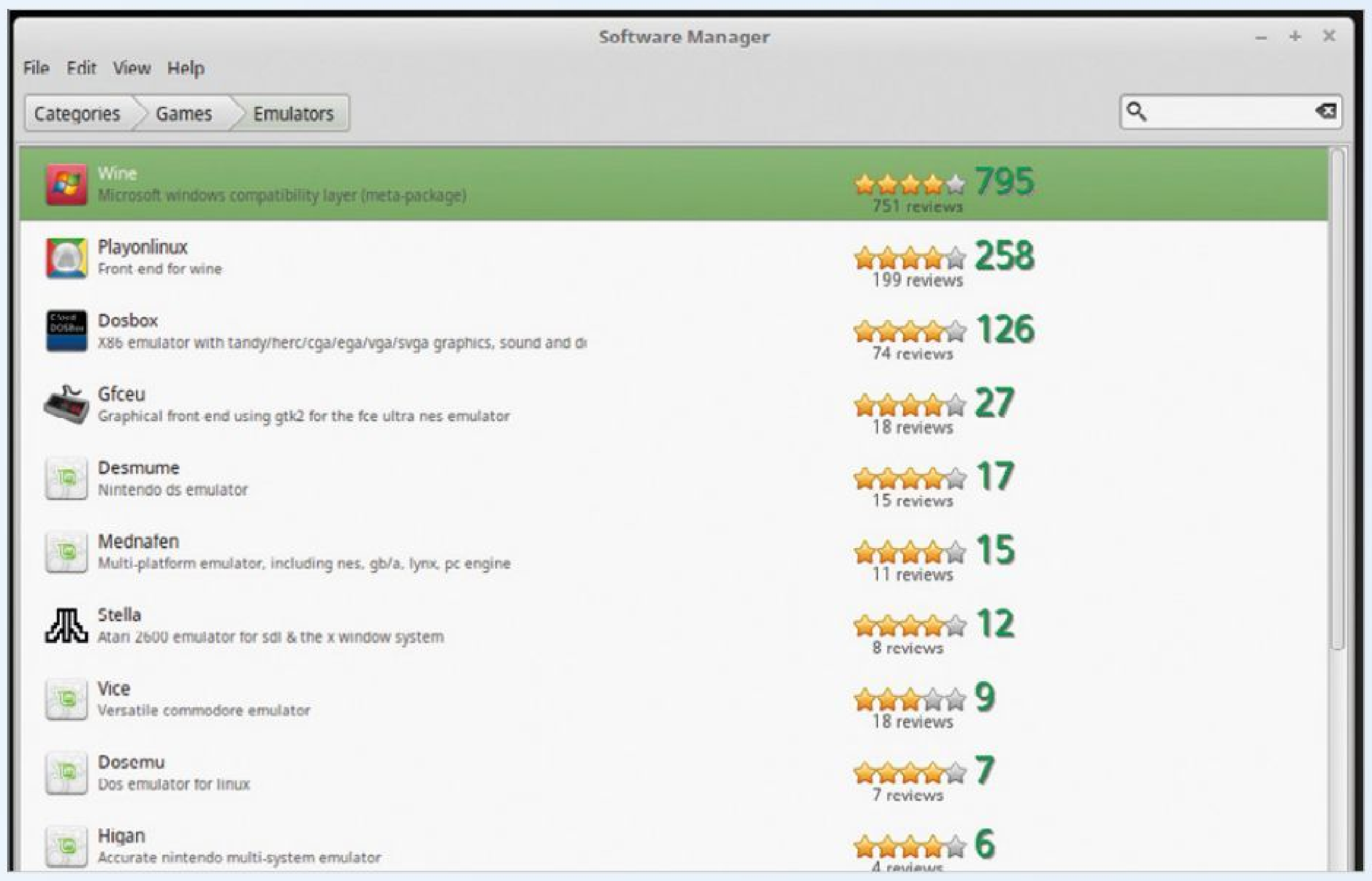

Software Manager
File Edit View Help
Categories
Featured
31 packages
All Packages
84514 packages
Internet
6367 packages
Sound and video
245 packages
Graphics
1189 packages
Office
352 packages
Ga
1971
Accessories
3657 packages
System tools
2343 packages
Fonts
384 packages
Science and Education
2813 packages
Programming
7390 packages
84514 packages are currently available
No ongoing actions

STEP 5 When you click on one of the categories, such as Games, you are presented with the list of apps associated with that category; and along the top of the screen you have several more sub-categories that you can drill further down into.


Software Manager
File Edit View Help
Categories
Games
Board games
42 packages
First-person shooters
7 packages
Real-time strategy
6 packages
Turn-based strategy
11 packages
Emulators
21 packages
Simulation and racing
11 packages

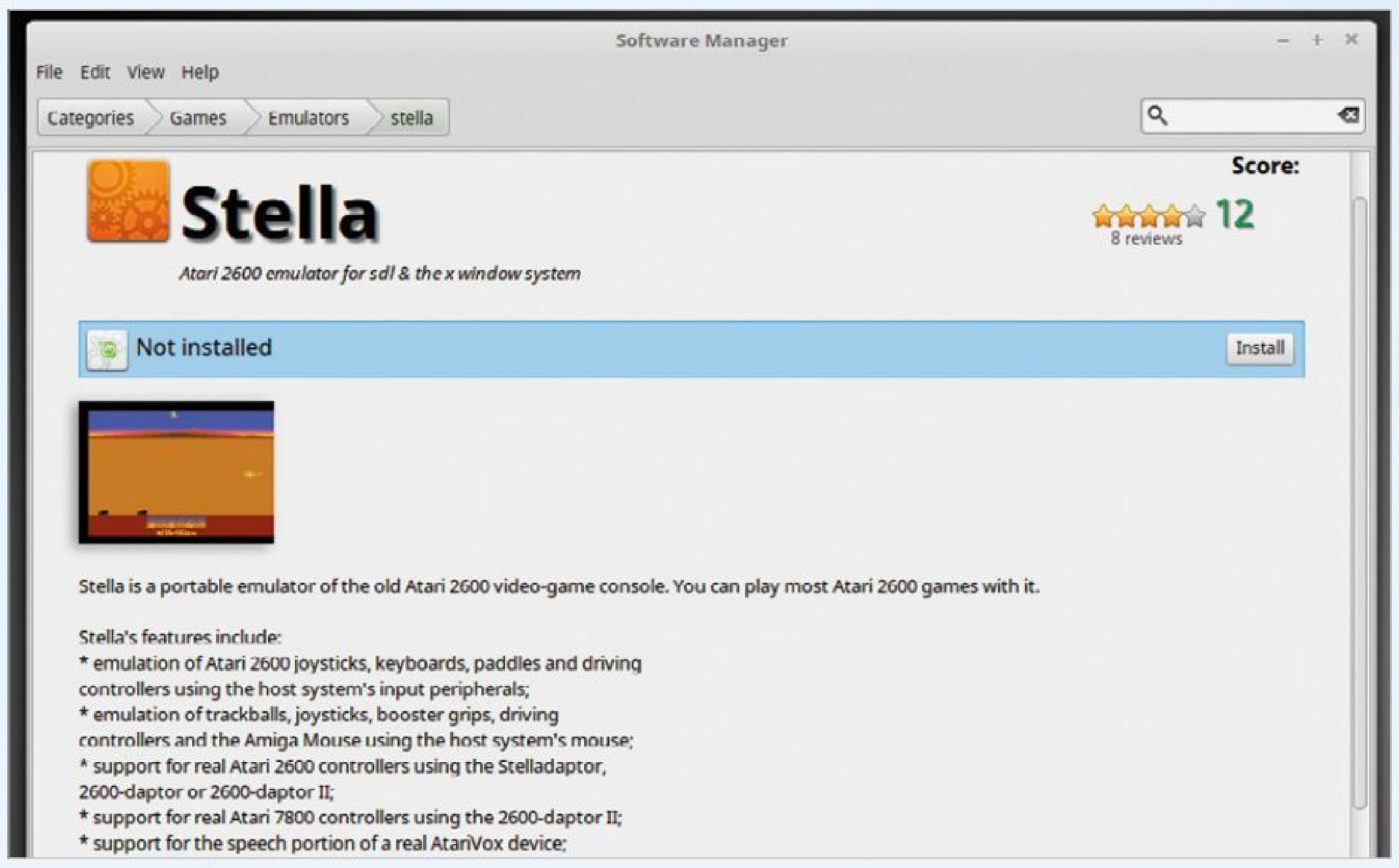
Wine	Microsoft windows compatibility layer (meta-package)	795	751 reviews
Wesnoth	Fantasy turn-based strategy game - complete suite (metapackage)	328	200 reviews
Supertuxkart	3d kart racing game	316	224 reviews
Playonlinux	Front-end for wine	258	199 reviews
Warzone2100	3d real time strategy game	226	157 reviews
Openarena	Fast-paced 3d first-person shooter	175	122 reviews
Frozen-bubble	Cool game where you pop out the bubbles!	162	117 reviews

STEP 6 If you now click the Emulators sub-category, the apps are displayed as a list for you to scroll through. Notice, you can return to any of the parent categories or back to the main Software Manager page by using the bread-crumb titles at the top of the screen. In this case it's: Categories > Games > Emulators.


Software Manager
File Edit View Help
Categories
Games
Emulators

Wine	Microsoft windows compatibility layer (meta-package)	795	751 reviews
Playonlinux	Front end for wine	258	199 reviews
Dosbox	X86 emulator with tandy/herc/cga/ega/vga/svga graphics, sound and di	126	74 reviews
Gfceu	Graphical front end using gtk2 for the fce ultra nes emulator	27	18 reviews
Desmume	Nintendo ds emulator	17	15 reviews
Mednafen	Multi-platform emulator, including nes, gb/a, lynx, pc engine	15	11 reviews
Stella	Atari 2600 emulator for sdl & the x window system	12	8 reviews
Vice	Versatile commodore emulator	9	18 reviews
Dosemu	Dos emulator for linux	7	7 reviews
Higan	Accurate nintendo multi-system emulator	6	4 reviews

STEP 7 If you double-click one of the apps, we're using Stella in the Emulators sub-category for this example, you are taken to the app information page. This details the name and features of the app in question. You can scroll down the page for further details, and even add a star rating and review if you wish.


Software Manager
File Edit View Help
Categories
Games
Emulators
stella
Install

Stella

Score: 12
8 reviews

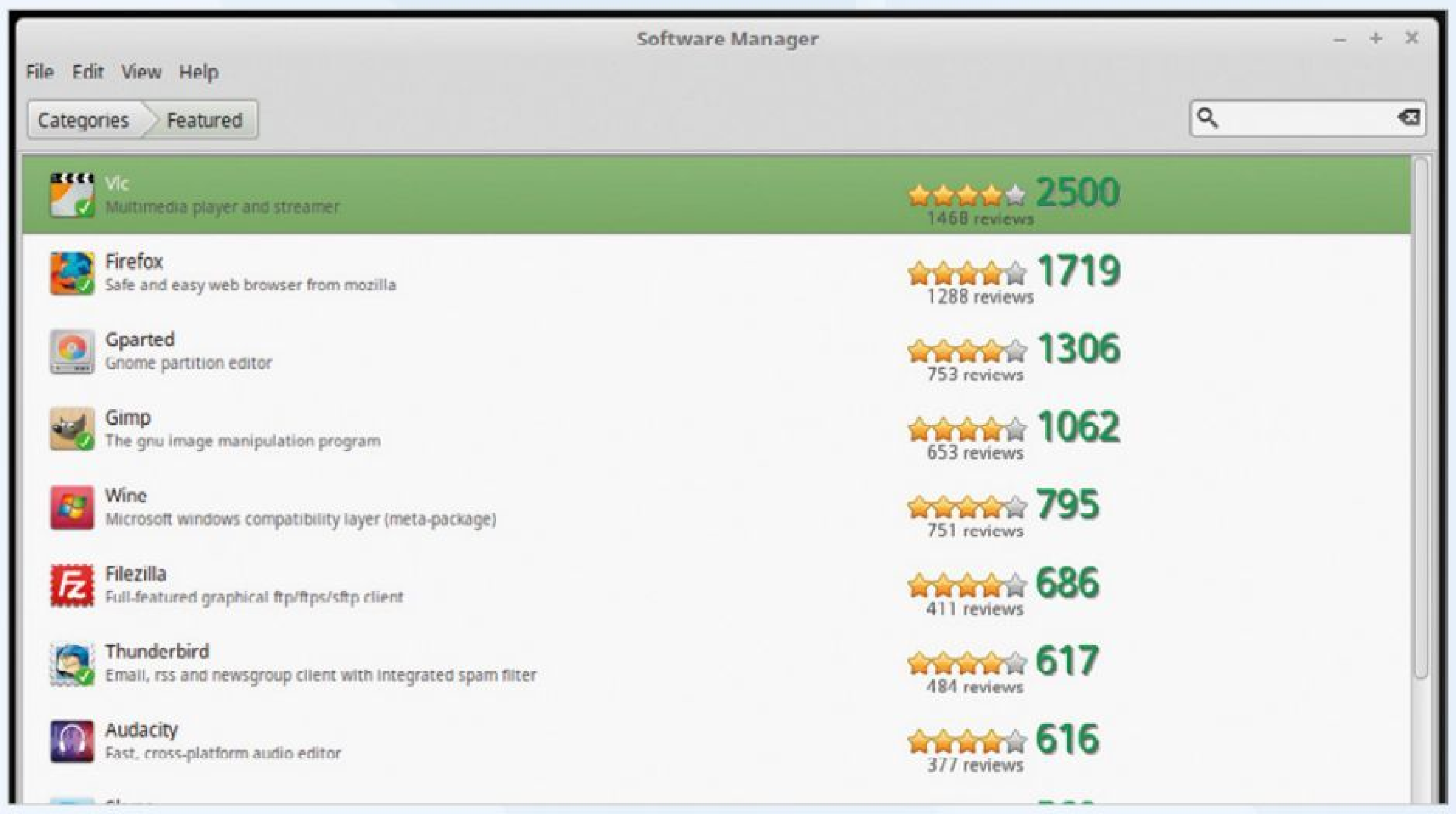
Atari 2600 emulator for sdl & the x window system

Not installed

Stella is a portable emulator of the old Atari 2600 video-game console. You can play most Atari 2600 games with it.

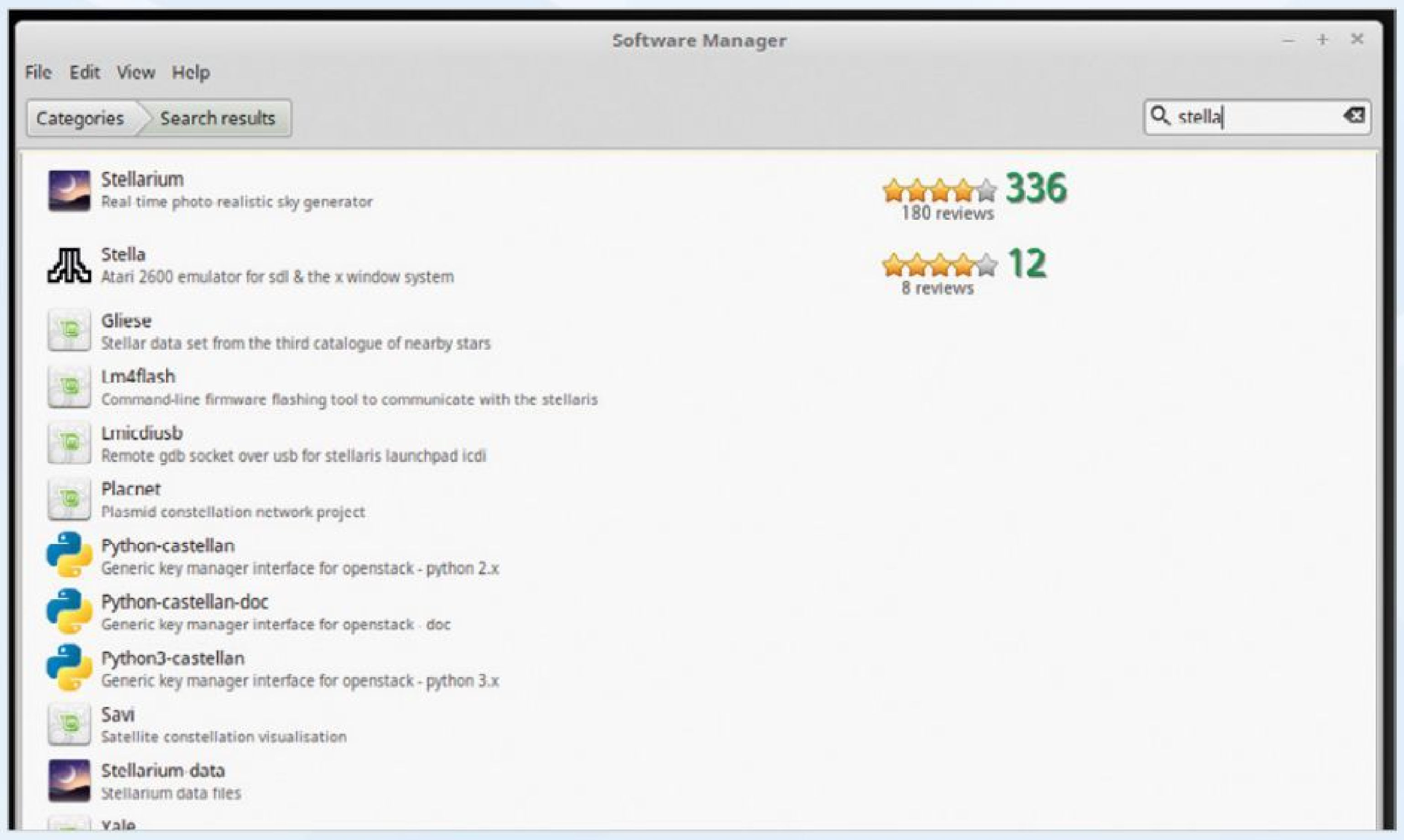
Stella's features include:
* emulation of Atari 2600 joysticks, keyboards, paddles and driving controllers using the host system's input peripherals;
* emulation of trackballs, joysticks, booster grips, driving controllers and the Amiga Mouse using the host system's mouse;
* support for real Atari 2600 controllers using the Stelladaptor, 2600-daptor or 2600-daptor II;
* support for real Atari 7800 controllers using the 2600-daptor II;
* support for the speech portion of a real AtariVox device;

STEP 8 Now return to the Software Manager main page by clicking on the Categories bread-crumb link in the top right of the console window. Click on the Featured category, to be taken to the highly-rated apps that the community has reviewed. These are, as the name suggests, the Featured apps for Mint, and worth checking out.


Software Manager
File Edit View Help
Categories
Featured

Vlc	Multimedia player and streamer	2500	1468 reviews
Firefox	Safe and easy web browser from mozilla	1719	1288 reviews
Gparted	Gnome partition editor	1306	753 reviews
Gimp	The gnu image manipulation program	1062	653 reviews
Wine	Microsoft windows compatibility layer (meta-package)	795	751 reviews
Filezilla	Full-featured graphical ftp/ftps/sftp client	686	411 reviews
Thunderbird	Email, rss and newsgroup client with integrated spam filter	617	484 reviews
Audacity	Fast, cross-platform audio editor	616	377 reviews

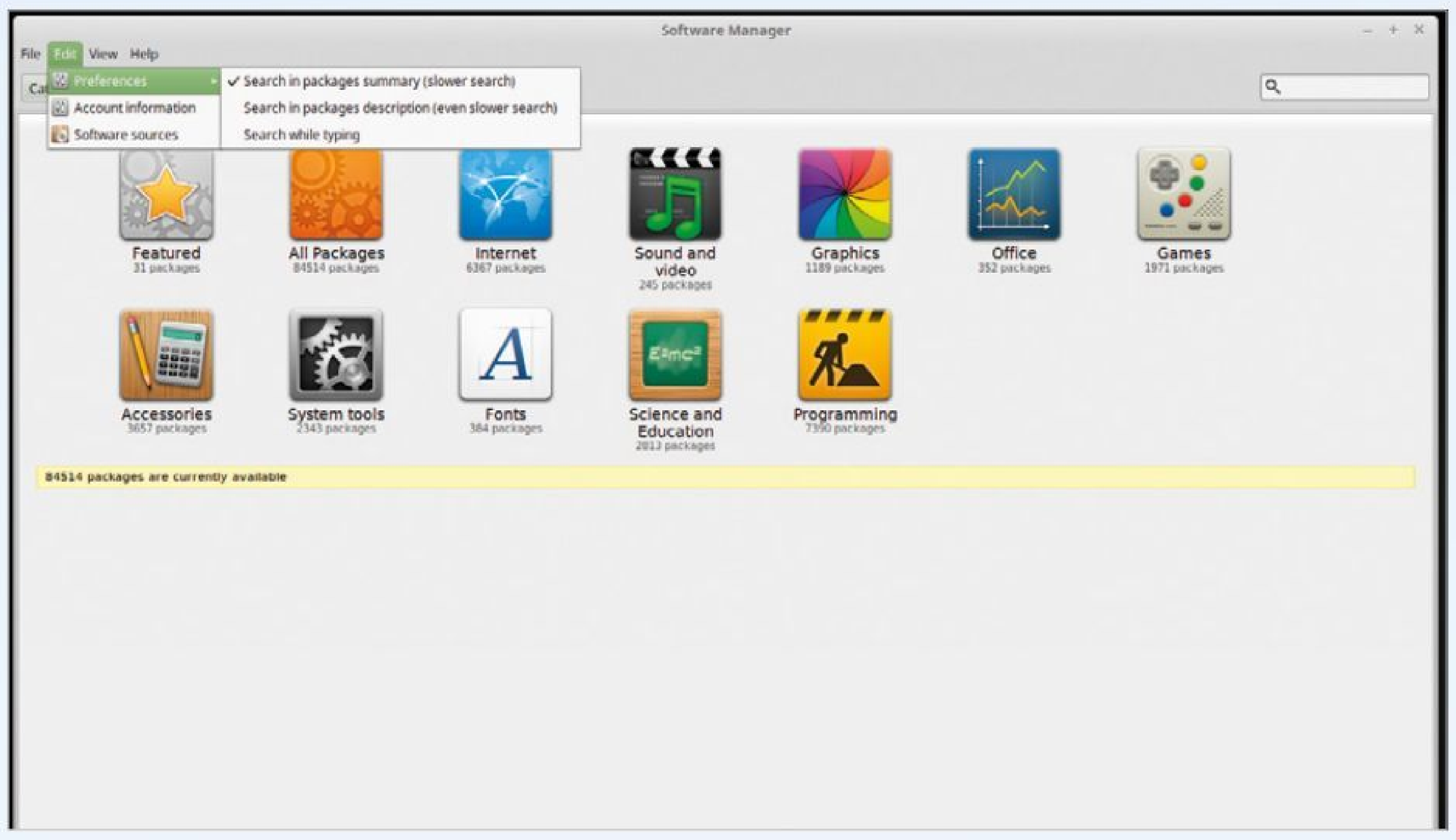
STEP 9 Returning to the main Software Manager page again, you can search for any of the apps within the categories or any category specific items, such as Science. The returned list will be made up of any related apps. If you search for Stella, the example app we looked at in Step 7, you have several results on offer.


Software Manager
File Edit View Help
Categories
Search results

stella

Stellarium	Real time photo realistic sky generator	336	180 reviews
Stella	Atari 2600 emulator for sdl & the x window system	12	8 reviews
Gliese	Stellar data set from the third catalogue of nearby stars		
Lm4flash	Command-line firmware flashing tool to communicate with the stellaris		
Lmicdiusb	Remote gdb socket over usb for stellaris launchpad icdi		
Placnet	Plasmid constellation network project		
Python-castellan	Generic key manager interface for openstack - python 2.x		
Python-castellan-doc	Generic key manager interface for openstack - doc		
Python3-castellan	Generic key manager interface for openstack - python 3.x		
Savi	Satellite constellation visualisation		
Stellarium-data	Stellarium data files		
Yale			

STEP 10 Once more at the main page, if you click Edit at the top of the console window you have several options available: Preferences, where you can alter the app search pattern; Account Information, where you can enter your Mint community login details (to leave reviews for apps); and Software sources, where you can alter server locations and add more.


Software Manager
File Edit View Help
Preferences
Account information
Software sources
✓ Search in packages summary (slower search)
Search in packages description (even slower search)
Search while typing
Featured
31 packages
All Packages
84514 packages
Internet
6367 packages
Sound and video
245 packages
Graphics
1189 packages
Office
352 packages
Games
1971 packages
Accessories
3657 packages
System tools
2343 packages
Fonts
384 packages
Science and Education
2013 packages
Programming
7390 packages

84514 packages are currently available

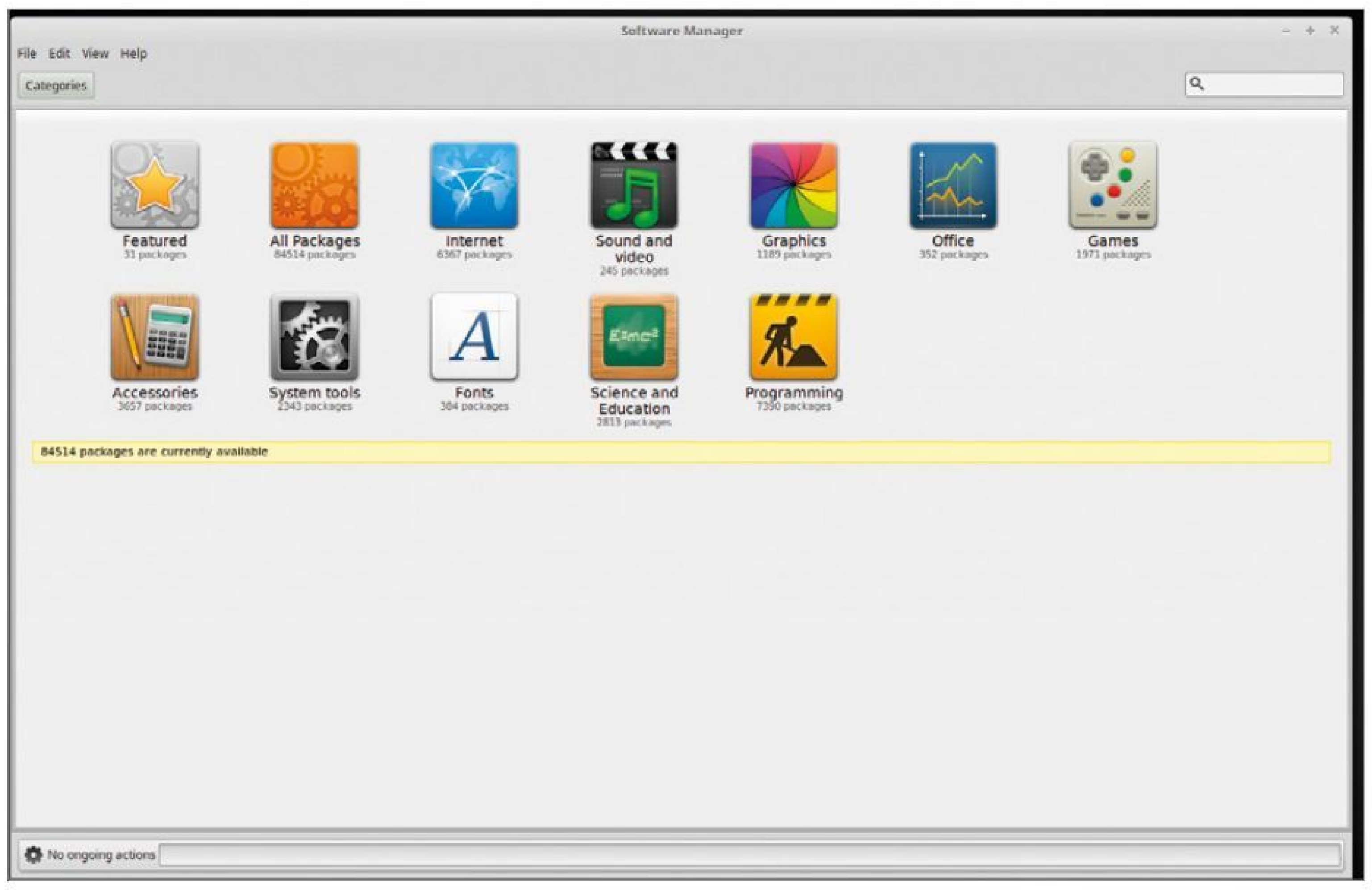
Installing from the Software Manager

Now you've had a little look around the Software Manager, how you access it and search for apps, it's time to actually install something. There are tens of thousands of apps available, so being able to install them is certainly handy.

NEW APPS

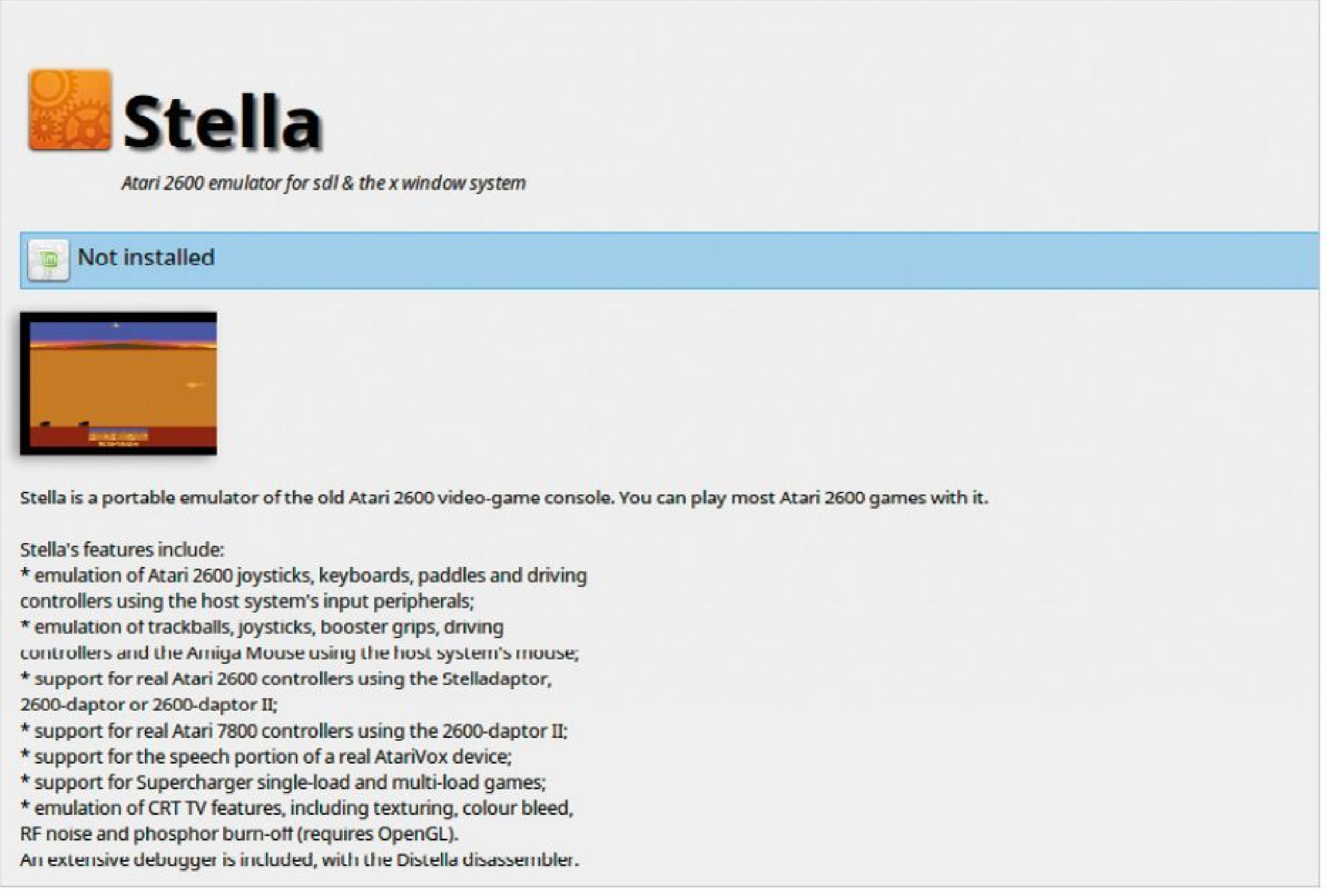
Installing a new program or app to an operating system used to be a perilous affair, involving armfuls of floppy disks, and the patience of a saint. These days things are a little easier, thankfully.

STEP 1 Start by opening the Software Manager, found in the Mint Menu, left-hand quick launch pane, under the Firefox icon. Enter your password and see the main Software Manager console window, or page.


Software Manager
File Edit View Help
Categories
Featured
All Packages
Internet
Sound and video
Graphics
Office
Games
Accessories
System tools
Fonts
Science and Education
Programming
No ongoing actions

84514 packages are currently available

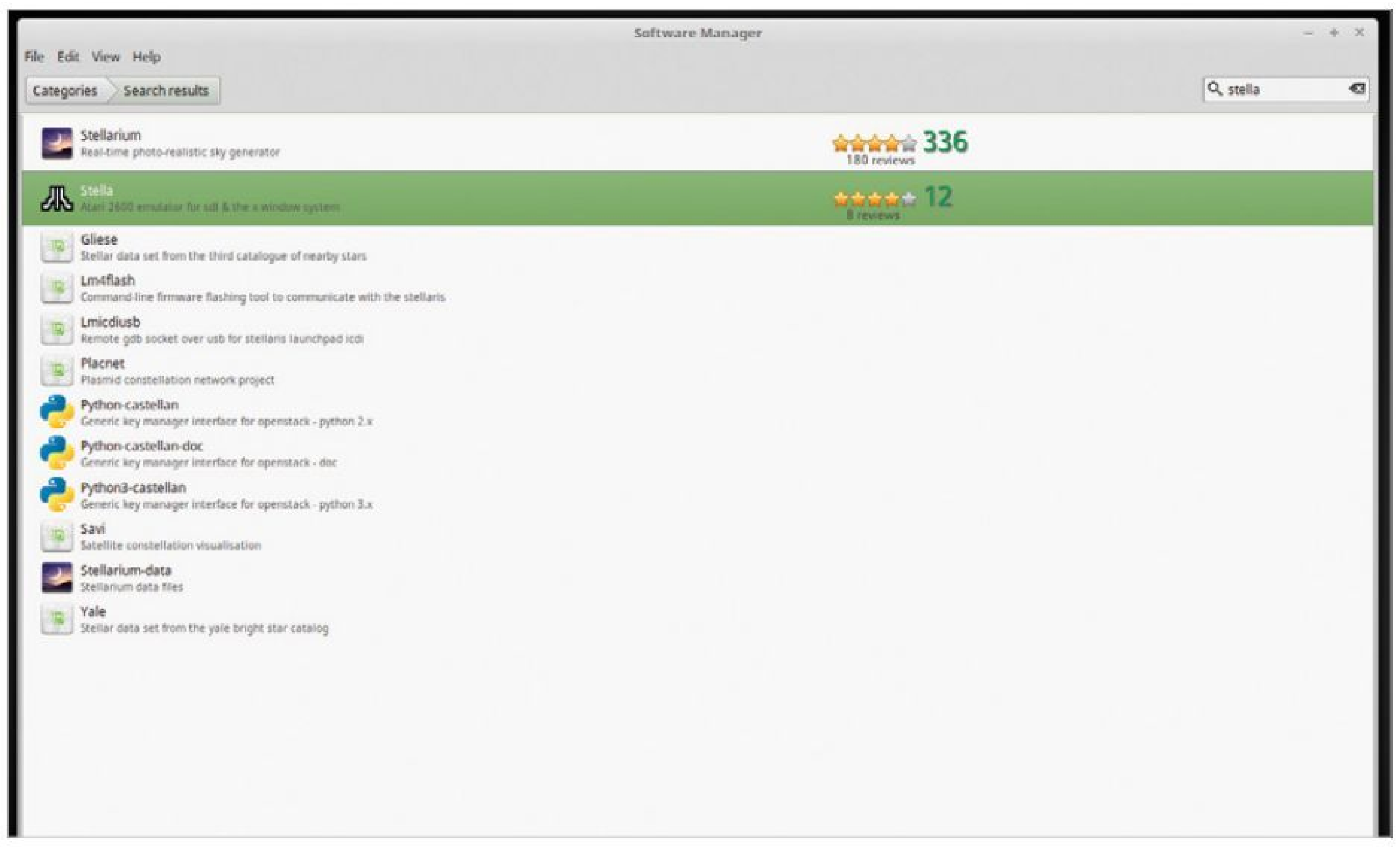
STEP 2 Installing an app via the Software Manager is an extremely easy affair; the difficult part is finding a single app out of the many that are listed. Let's begin by installing the Stella app we looked at on the previous page. Stella, if you recall, is in the Games > Emulators category and is an Atari 2600 console emulator.


Stella
Atari 2600 emulator for sdl & the x window system
Not installed

Stella is a portable emulator of the old Atari 2600 video-game console. You can play most Atari 2600 games with it.

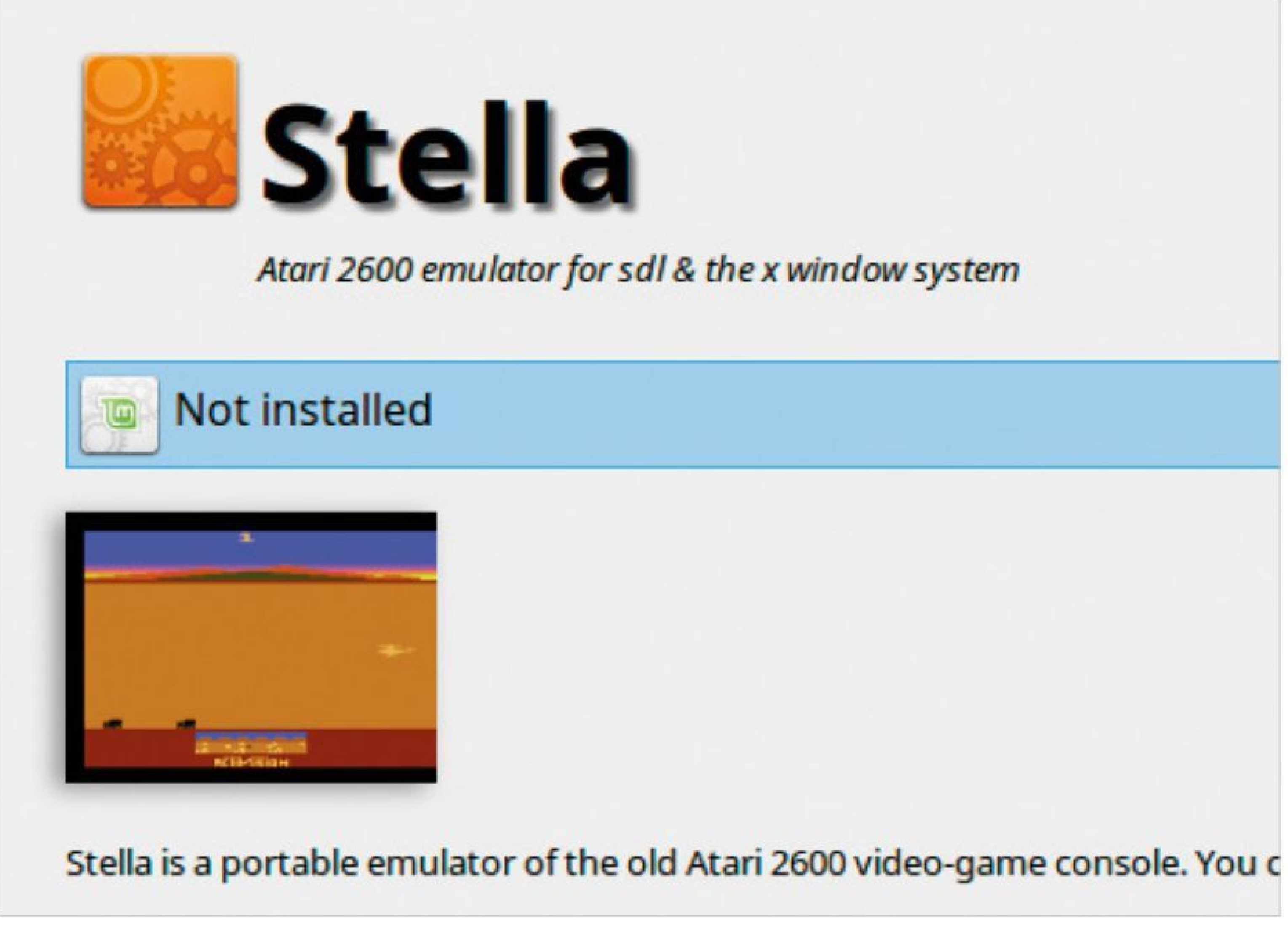
Stella's features include:
* emulation of Atari 2600 joysticks, keyboards, paddles and driving controllers using the host system's input peripherals;
* emulation of trackballs, joysticks, booster grips, driving controllers and the Amiga Mouse using the host system's mouse;
* support for real Atari 2600 controllers using the Stelladaptor, 2600-daptor or 2600-daptor II;
* support for real Atari 7800 controllers using the 2600-daptor II;
* support for the speech portion of a real AtariVox device;
* support for Supercharger single-load and multi-load games;
* emulation of CRT TV features, including texturing, colour bleed, RF noise and phosphor burn-off (requires OpenGL).
An extensive debugger is included, with the Distella disassembler.

STEP 3 You need to get to the Stella app page in Software Manager before you're able to install it. You can do that either by navigating through Games > Emulators > Stella or you can simply search for Stella in the search box and double click the Stella result as it appears in the list of apps.


Software Manager
File Edit View Help
Categories
Search results
stella

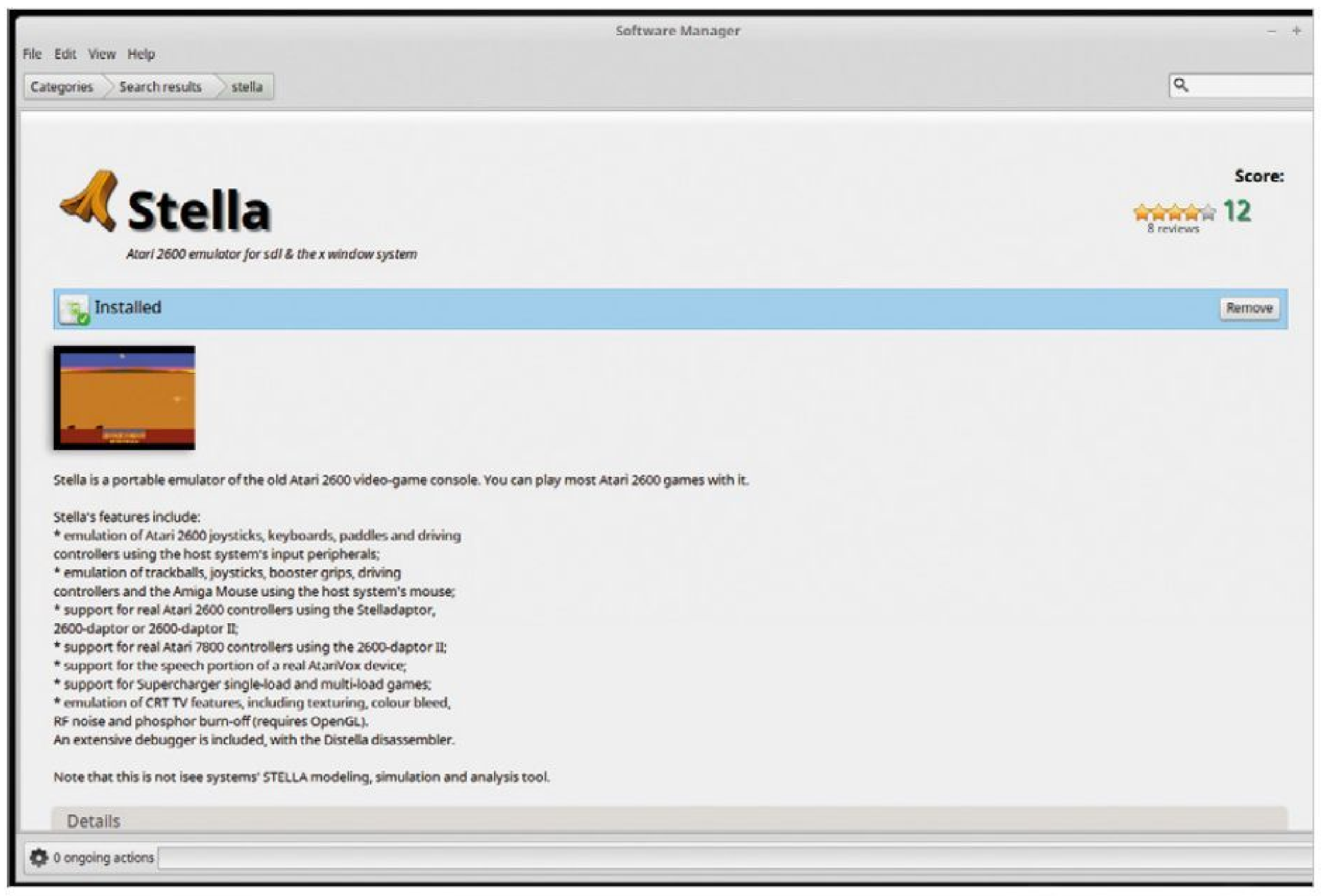
Stellarium Real-time photo-realistic sky generator	336 180 reviews
Stella Atari 2600 emulator for sdl & the x window system	12 8 reviews
Gliese Stellar data set from the third catalogue of nearby stars	
Lm4flash Command-line firmware flashing tool to communicate with the stellaris	
Lmicdiusb Remote gdb socket over usb for stellaris launchpad icdi	
Placnet Plasmid constellation network project	
Python-castellan Generic key manager interface for openstack - python 2.x	
Python-castellan-doc Generic key manager interface for openstack - doc	
Python3-castellan Generic key manager interface for openstack - python 3.x	
Savi Satellite constellation visualisation	
Stellarium-data Stellarium data files	
Yale Stellar data set from the yale bright star catalog	

STEP 4 You should now be at the Stella details page we looked at on the previous page. You can see that, at the moment, the app isn't installed; it says 'Not Installed' above the screenshot of the app in action in the blue bar.


Stella
Atari 2600 emulator for sdl & the x window system
Not installed

Stella is a portable emulator of the old Atari 2600 video-game console. You c

STEP 5 As you most likely suspect, what we need to do is click on the Install button that's at the right-hand end of that blue bar. As soon as you click it the Software Manager will begin the installation. In this example, the install is quite fast as Stella is a reasonably small app. Bigger apps though will take longer.


Software Manager
File Edit View Help
Categories
Search results
stella
Score:
12
8 reviews
Remove
Details
0 ongoing actions

Stella

Atari 2600 emulator for sdl & the x window system

Installed

Stella is a portable emulator of the old Atari 2600 video-game console. You can play most Atari 2600 games with it.

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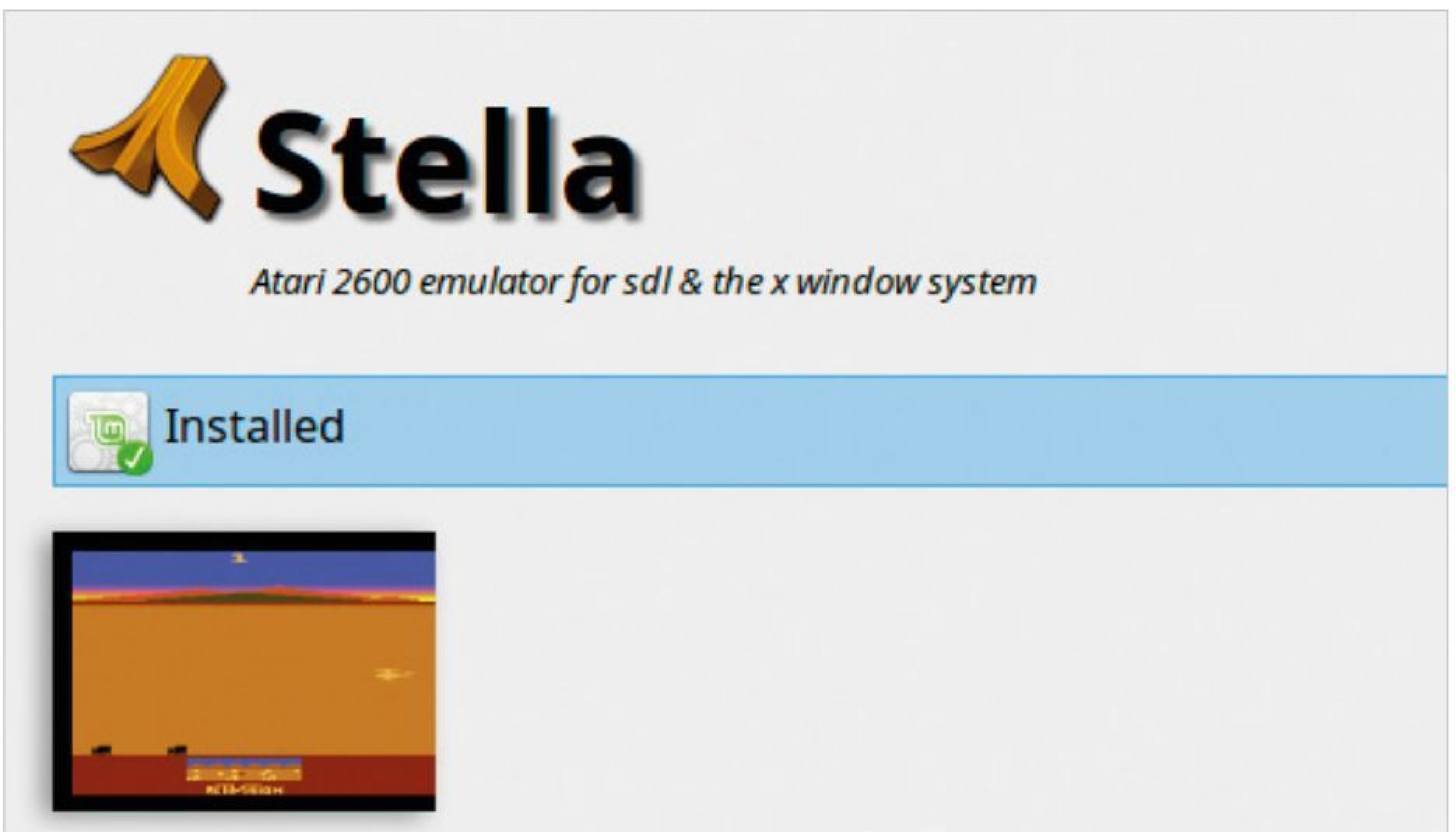
* support for real Atari 7800 controllers using the 2600-daptor II;
* support for the speech portion of a real AtariVox device;
* support for Supercharger single-load and multi-load games;
* emulation of CRT TV features, including texturing, colour bleed, RF noise and phosphor burn-off (requires OpenGL).
An extensive debugger is included, with the Distella disassembler.

Note that this is not isee systems' STELLA modeling, simulation and analysis tool.

STEP 6 You can see a couple of things happening during and after the installation of a new app. The section at the bottom of the Software Manager page will display a green progress bar in the Ongoing Actions section. When it's filled the app is installed. The Software Manager also reports when the app is Installed, and the Install button now reads Remove.

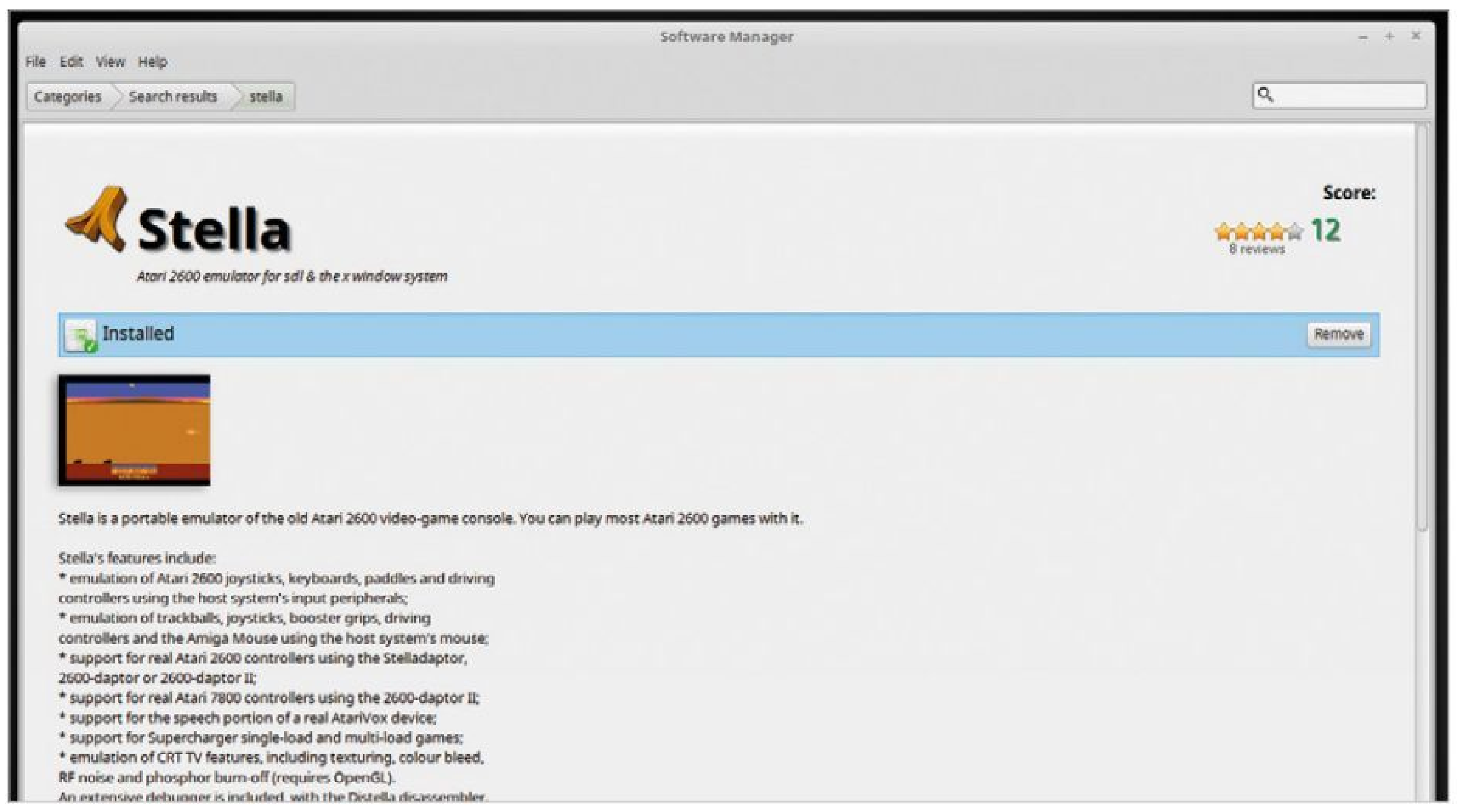


Stella

Atari 2600 emulator for sdl & the x window system

Installed

STEP 7 If there were any problems with the installation, you would have received a pop-up box informing of what went wrong: a sudden loss of internet, or a broken package for example. Hopefully you won't see many of these during your time with Linux Mint. Moving on, if you minimise the Software Manager and click the Menu you can see some changes.


Software Manager
File Edit View Help
Categories
Search results
stella
Score:
12
8 reviews
Remove

Stella

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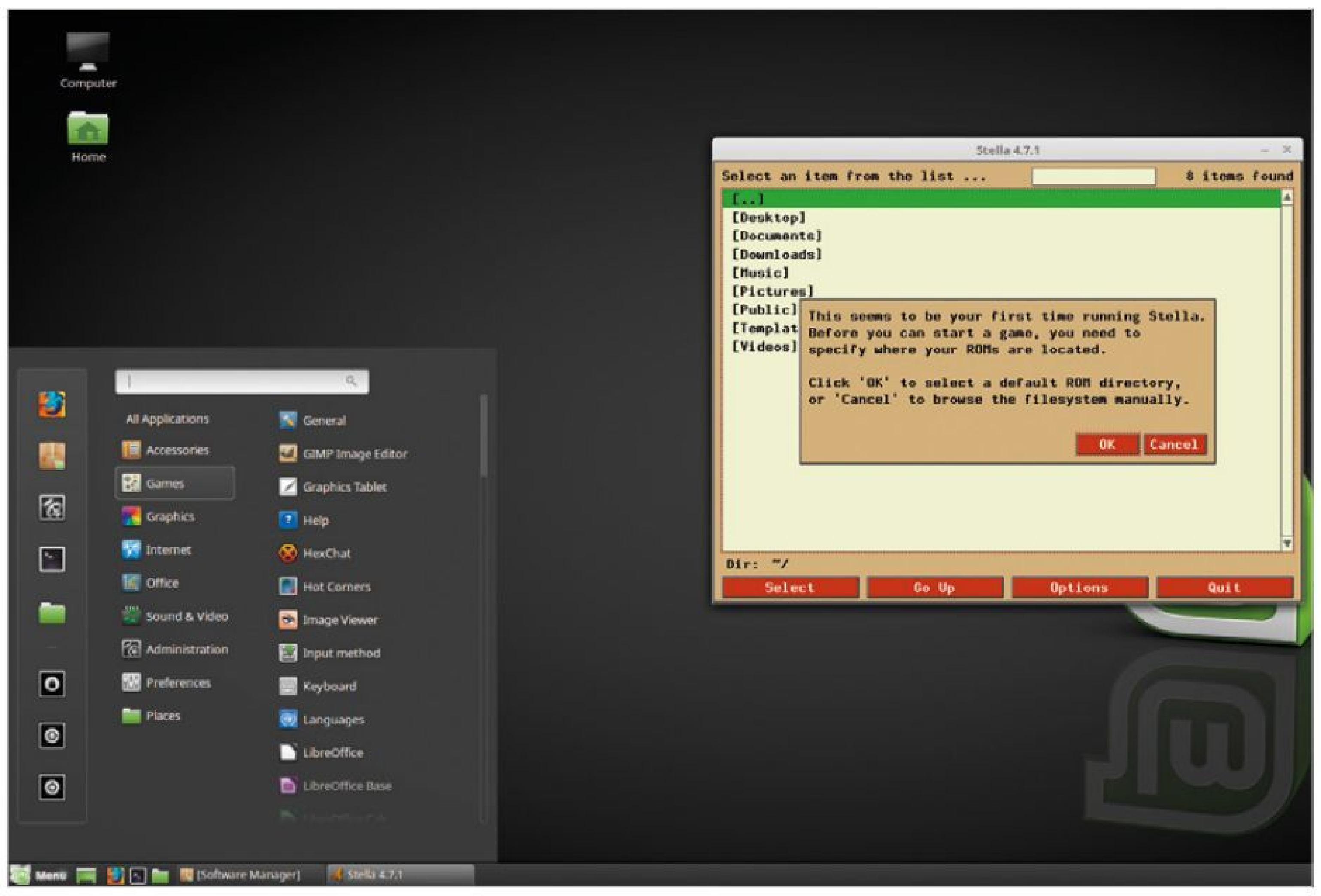
* support for Supercharger single-load and multi-load games;
* emulation of CRT TV features, including texturing, colour bleed, RF noise and phosphor burn-off (requires OpenGL).
An extensive debugger is included, with the Distella disassembler.

STEP 8 You've installed an app that's under the Games category, so Linux Mint has automatically added both the category and the app itself to the Menu. Prior to the install there was nothing in the Games category in the Menu, so it was omitted. If you hover over Games, Stella will be present.


Computer
Home
All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
General
GIMP Image Editor
Graphics Tablet
Help
HexChat
Hot Corners
Image Viewer
Input method
Keyboard
Languages
LibreOffice
LibreOffice Base
Menu
[Software Manager]
Stella 4.7.1
Select
Go Up
Options
Quit
OK
Cancel

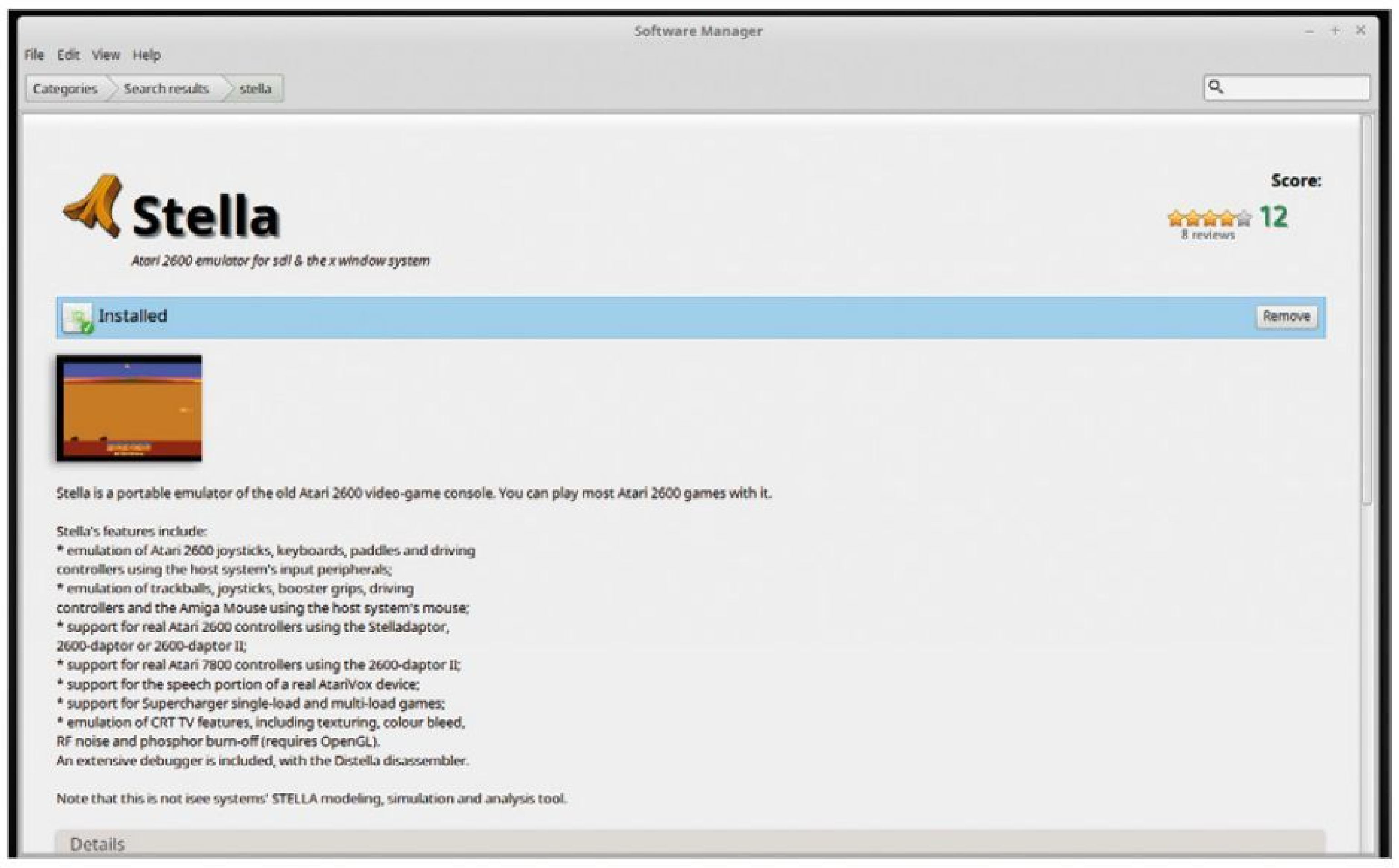
```
Stella 4.7.1
Select an item from the list ...                    8 items found
[..]
[Desktop]
[Documents]
[Downloads]
[Music]
[Pictures]
[Public]
[Templat
[Videos]

This seems to be your first time running Stella.
Before you can start a game, you need to
specify where your ROMs are located.

Click 'OK' to select a default ROM directory,
or 'Cancel' to browse the filesystem manually.

Dir: ~/
```

STEP 9 Obviously clicking the Stella app in the Menu will launch the program but it's interesting to see that Mint will automatically organise the Menu structure for you. Returning to the Software Manager, we can now look to uninstall the Stella app. Simply put, just click the Remove icon located to the right, in the blue bar.


Software Manager
File Edit View Help
Categories
Search results
stella
Score:
12
8 reviews
Remove
Details

Stella

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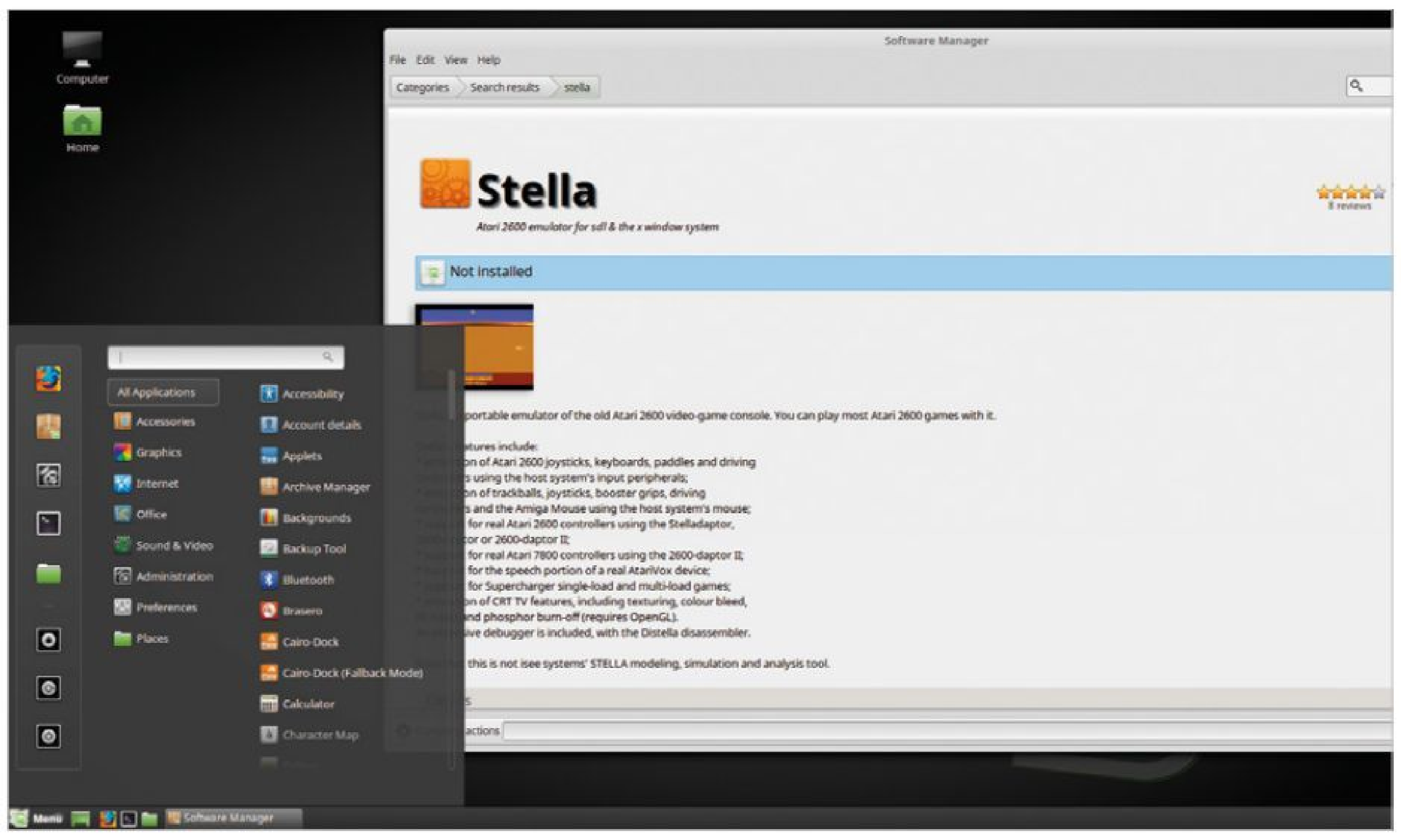
* support for Supercharger single-load and multi-load games;
* emulation of CRT TV features, including texturing, colour bleed, RF noise and phosphor burn-off (requires OpenGL).
An extensive debugger is included, with the Distella disassembler.

Note that this is not isee systems' STELLA modeling, simulation and analysis tool.

STEP 10 As with the installation process, the Ongoing Actions progress bar will work through the removal of the app and the app's details page will change from Installed, to Not Installed. Notice also that in the Mint Menu the app and its category have been removed. If you should reinstall it, then they reappear.


Computer
Home
Software Manager
File Edit View Help
Categories
Search results
stella
All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Accessibility
Account details
Applets
Archive Manager
Backgrounds
Backup Tool
Bluetooth
Brasero
Cairo-Dock
Cairo-Dock (Fallback Mode)
Calculator
Character Map
Menu
Software Manager

Stella

Atari 2600 emulator for sdl & the x window system

Not installed

Introduction to Synaptic Package Manager

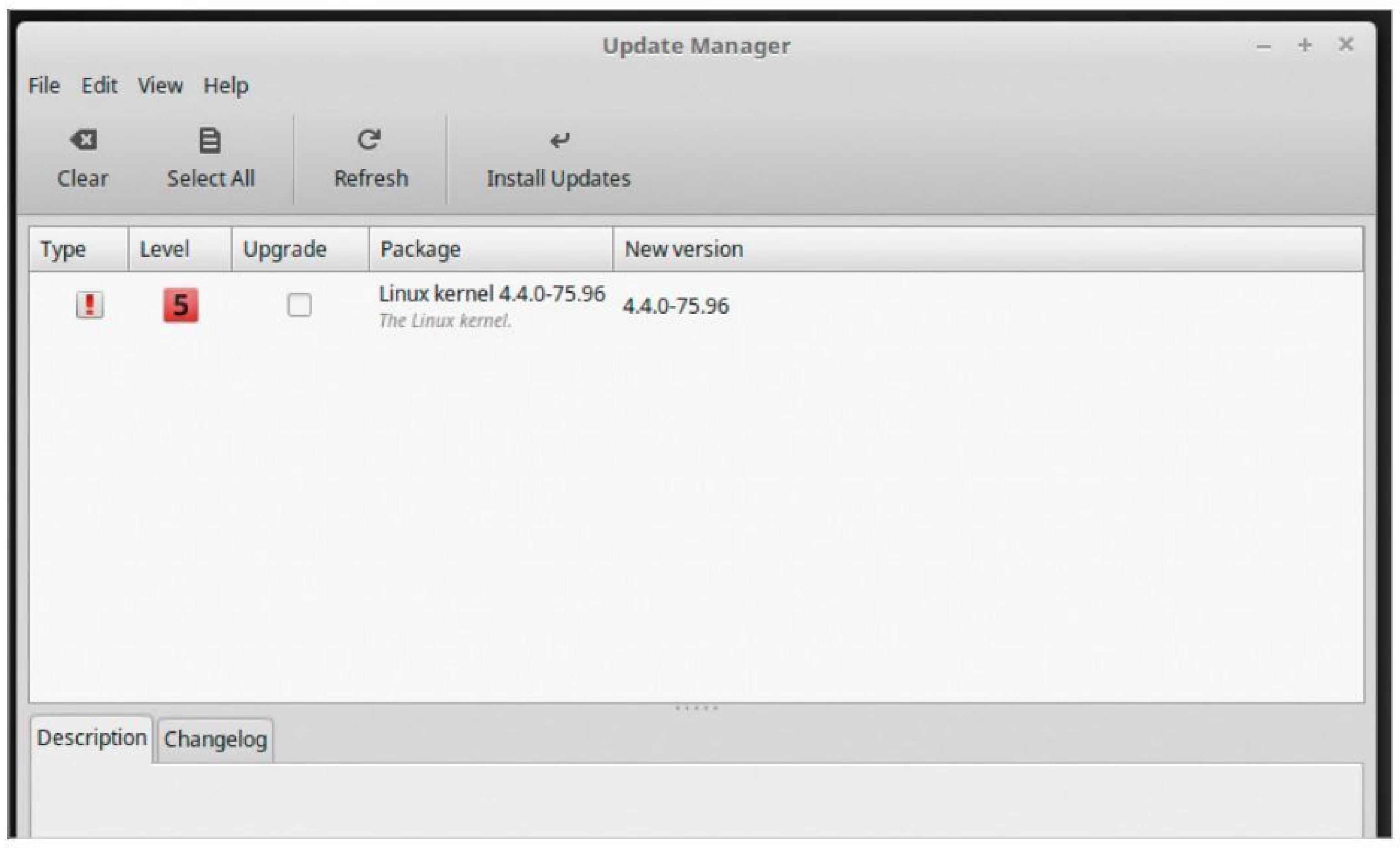
There are a number of ways to install apps in Linux Mint: the Software Manager, via the Terminal and Synaptic Package Manager. Synaptic was released over fifteen years ago, and is designed for Debian-based systems, to install, remove, and manage software.

PACKAGE DELIVERY

Apps and software in Linux are delivered in packages, regardless of whether you're using Ubuntu, Red Hat or Linux Mint. There are tens of thousands of packages available, so you need an easy way to get to them.

STEP 1

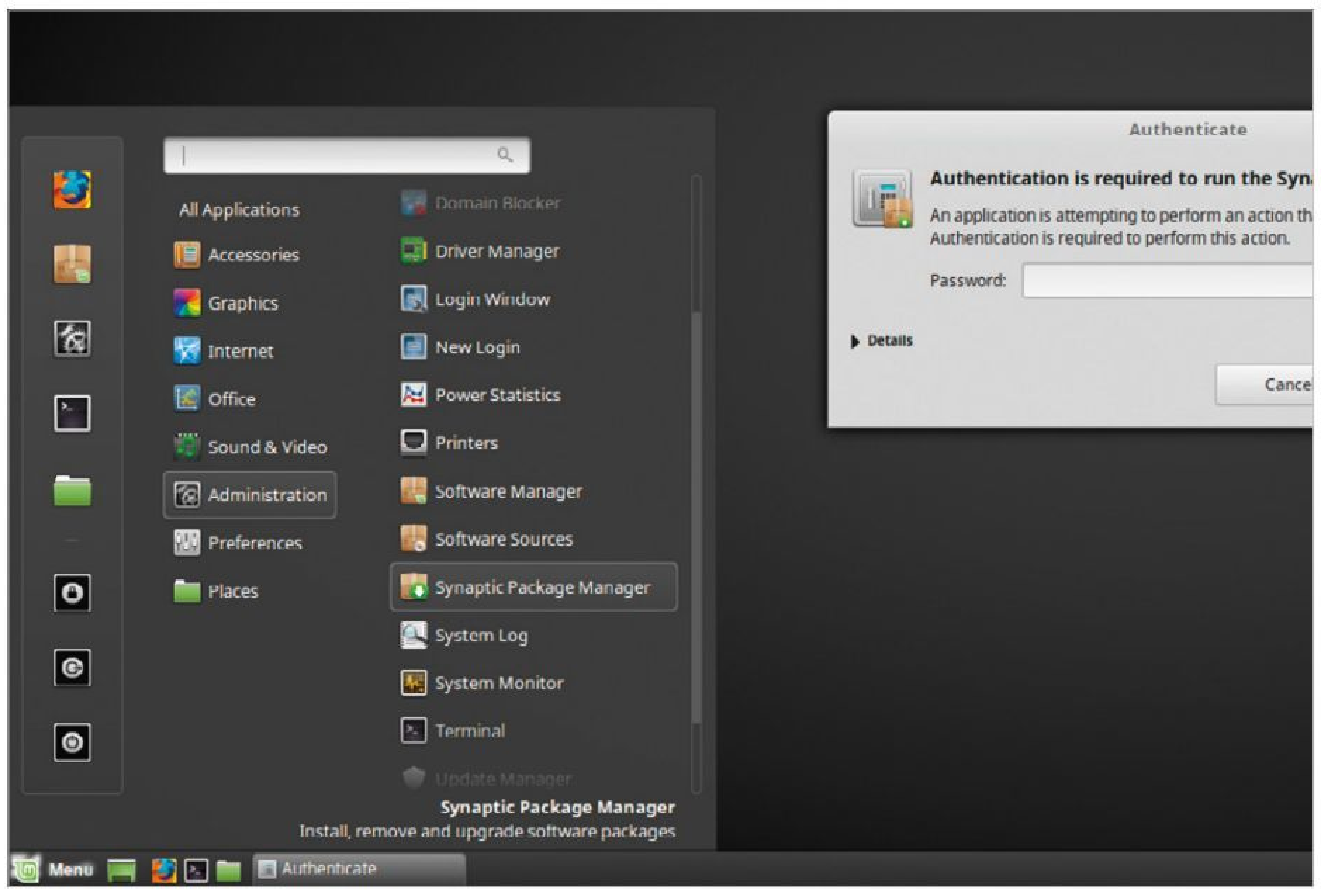
You need to make sure the system is up to date as you've done numerous times before. Drop to the Update Manager, via the shield icon, and Refresh and Install any level-3 or less updates. Depending on the type of updates, you may need to reboot your system.


Update Manager
File Edit View Help
Clear
Select All
Refresh
Install Updates
Description
Changelog

Type	Level	Upgrade	Package	New version
!	5	☐	Linux kernel 4.4.0-75.96 *The Linux kernel.*	4.4.0-75.96

STEP 2

Synaptic Package Manager can be found in the Administration category in the Mint Menu or by entering synaptic into the search box. You need to enter your password to open the console window; as with the Software Manager you're dealing with the installation and removal of system software.


All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Domain Blocker
Driver Manager
Login Window
New Login
Power Statistics
Printers
Software Manager
Software Sources
Synaptic Package Manager
System Log
System Monitor
Terminal
Update Manager
Menu
Authenticate
Details
Cance

Synaptic Package Manager
Install, remove and upgrade software packages

Authenticate

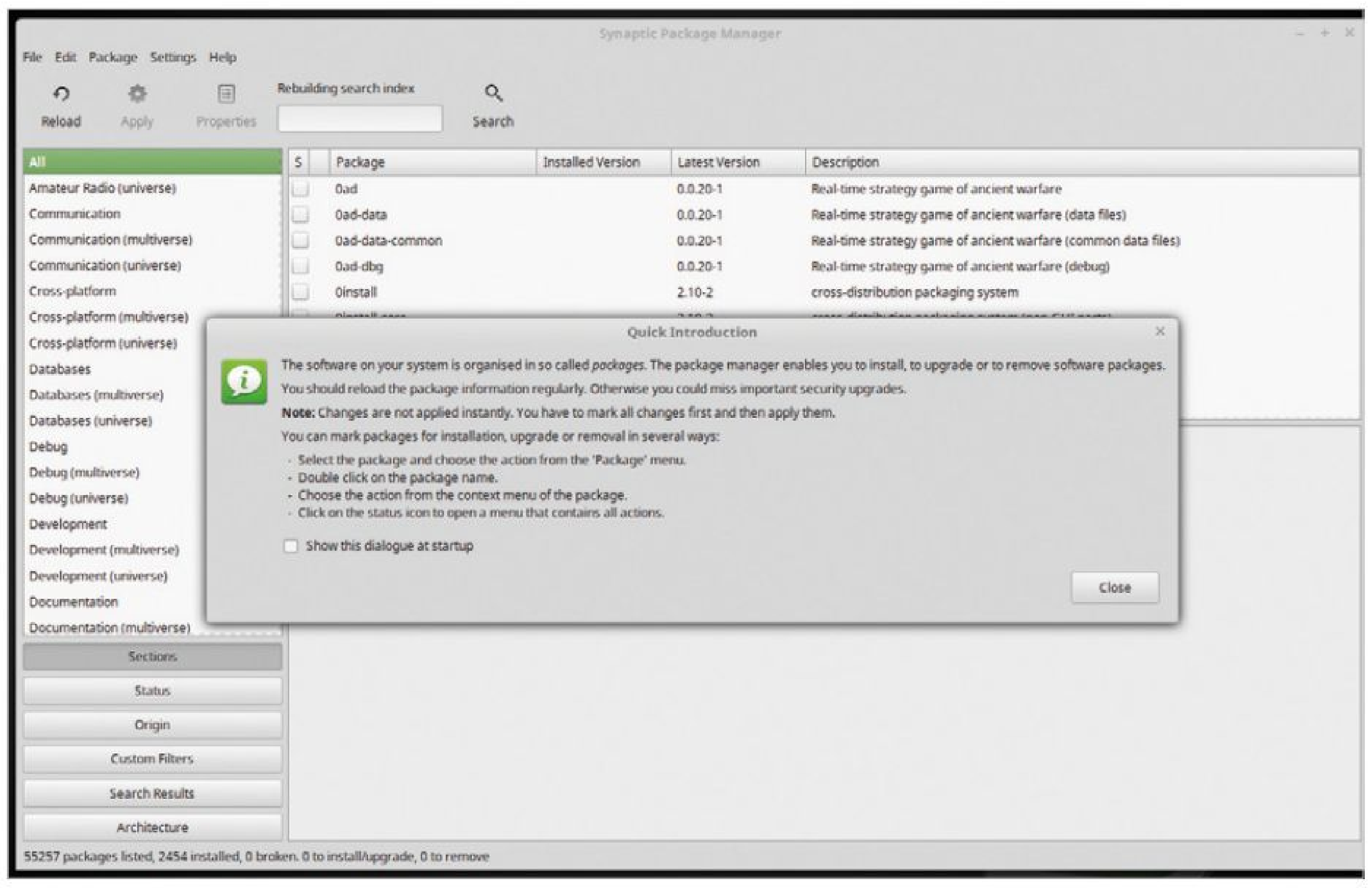
Authentication is required to run the Syn

An application is attempting to perform an action th
Authentication is required to perform this action.

Password:

STEP 3

When you first launch Synaptic Package Manager you are presented with a Quick Introduction window. It's worth reading through it and you can tick the box at the bottom to enable it to pop-up every time you launch Synaptic should you wish.


Synaptic Package Manager
File Edit Package Settings Help
Reload
Apply
Properties
Search
All
Amateur Radio (universe)
Communication
Communication (multiverse)
Communication (universe)
Cross-platform
Cross-platform (multiverse)
Cross-platform (universe)
Databases
Databases (multiverse)
Databases (universe)
Debug
Debug (multiverse)
Debug (universe)
Development
Development (multiverse)
Development (universe)
Documentation
Documentation (multiverse)
Sections
Status
Origin
Custom Filters
Search Results
Architecture
Close

Rebuilding search index

S	Package	Installed Version	Latest Version	Description
☐	0ad		0.0.20-1	Real-time strategy game of ancient warfare
☐	0ad-data		0.0.20-1	Real-time strategy game of ancient warfare (data files)
☐	0ad-data-common		0.0.20-1	Real-time strategy game of ancient warfare (common data files)
☐	0ad-dbg		0.0.20-1	Real-time strategy game of ancient warfare (debug)
☐	0install		2.10-2	cross-distribution packaging system

Quick Introduction

The software on your system is organised in so called *packages*. The package manager enables you to install, to upgrade or to remove software packages.

You should reload the package information regularly. Otherwise you could miss important security upgrades.

Note: Changes are not applied instantly. You have to mark all changes first and then apply them.

You can mark packages for installation, upgrade or removal in several ways:

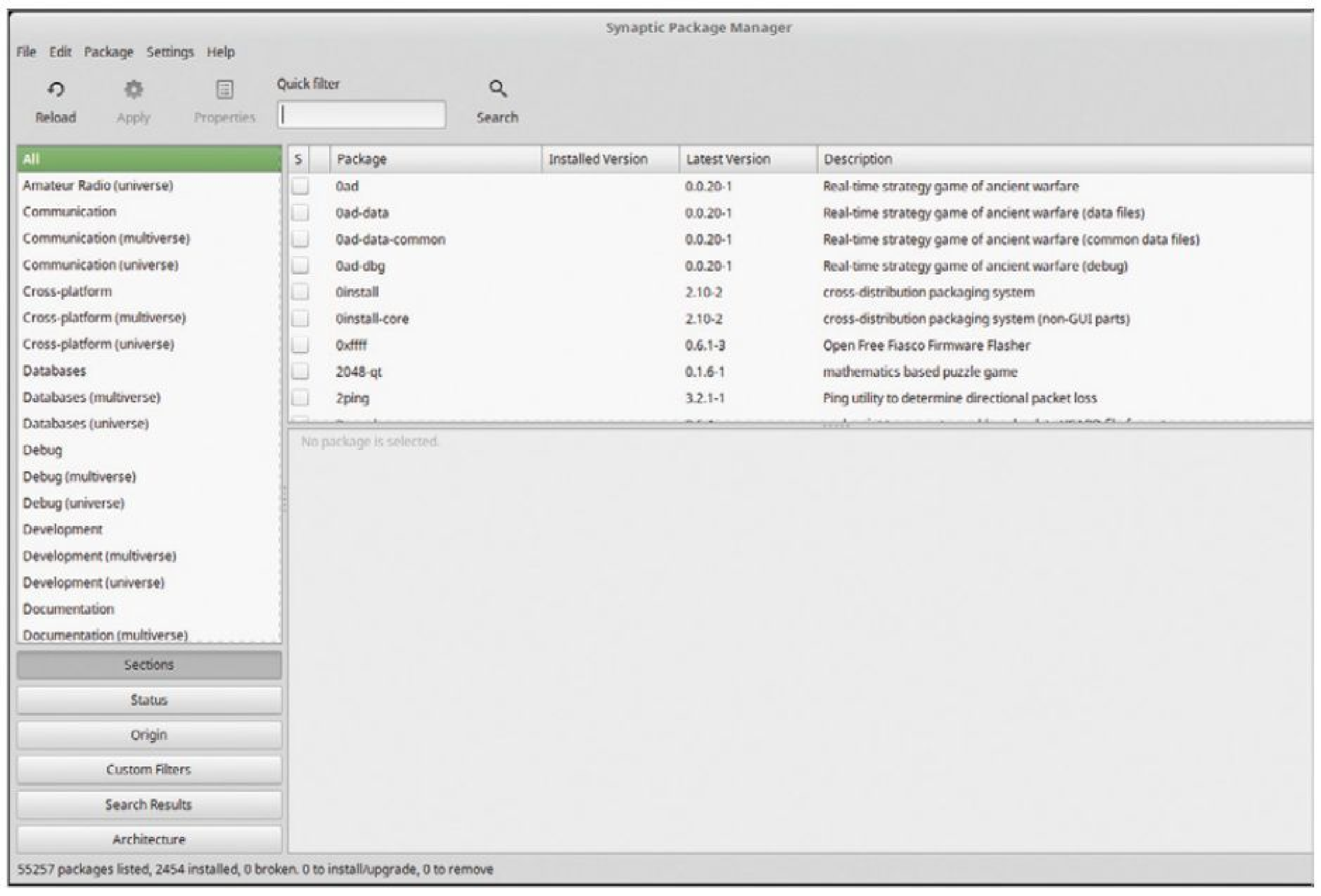
- Select the package and choose the action from the 'Package' menu.
- Double click on the package name.
- Choose the action from the context menu of the package.
- Click on the status icon to open a menu that contains all actions.

☐ Show this dialogue at startup

55257 packages listed, 2454 installed, 0 broken. 0 to install/upgrade, 0 to remove

STEP 4

With the Quick Introduction window closed you can start to take a look around Synaptic. As you can see, the console is split into several sections. The left column lists the available categories of packages (apps) available and below that there's a selection of category and app filters to apply.


Synaptic Package Manager
File Edit Package Settings Help
Reload
Apply
Properties
Quick filter
Search
All
Amateur Radio (universe)
Communication
Communication (multiverse)
Communication (universe)
Cross-platform
Cross-platform (multiverse)
Cross-platform (universe)
Databases
Databases (multiverse)
Databases (universe)
Debug
Debug (multiverse)
Debug (universe)
Development
Development (multiverse)
Development (universe)
Documentation
Documentation (multiverse)
Sections
Status
Origin
Custom Filters
Search Results
Architecture

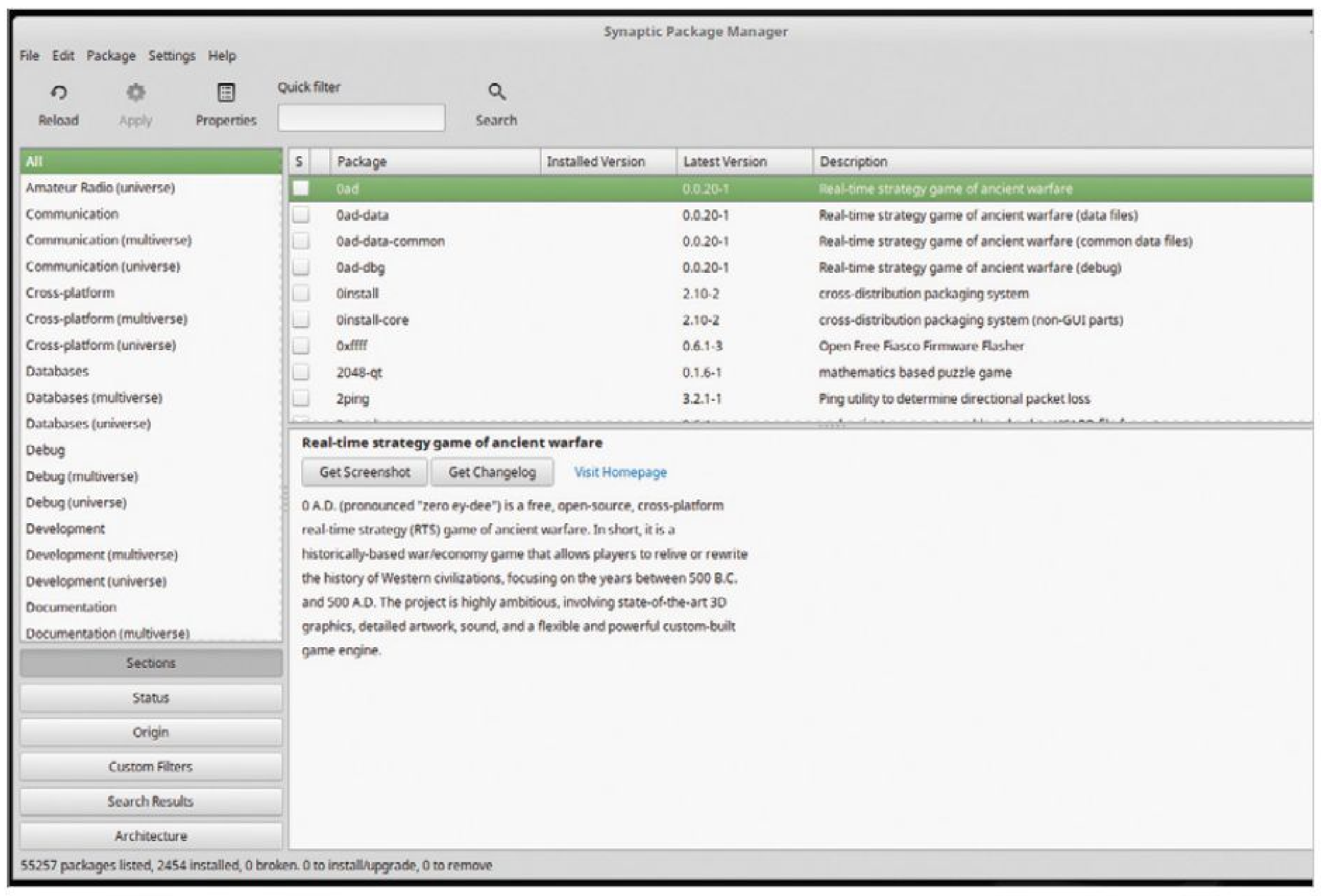
S	Package	Installed Version	Latest Version	Description
☐	0ad		0.0.20-1	Real-time strategy game of ancient warfare
☐	0ad-data		0.0.20-1	Real-time strategy game of ancient warfare (data files)
☐	0ad-data-common		0.0.20-1	Real-time strategy game of ancient warfare (common data files)
☐	0ad-dbg		0.0.20-1	Real-time strategy game of ancient warfare (debug)
☐	0install		2.10-2	cross-distribution packaging system
☐	0install-core		2.10-2	cross-distribution packaging system (non-GUI parts)
☐	0xffff		0.6.1-3	Open Free Fiasco Firmware Flasher
☐	2048-qt		0.1.6-1	mathematics based puzzle game
☐	2ping		3.2.1-1	Ping utility to determine directional packet loss

No package is selected.

55257 packages listed, 2454 installed, 0 broken. 0 to install/upgrade, 0 to remove

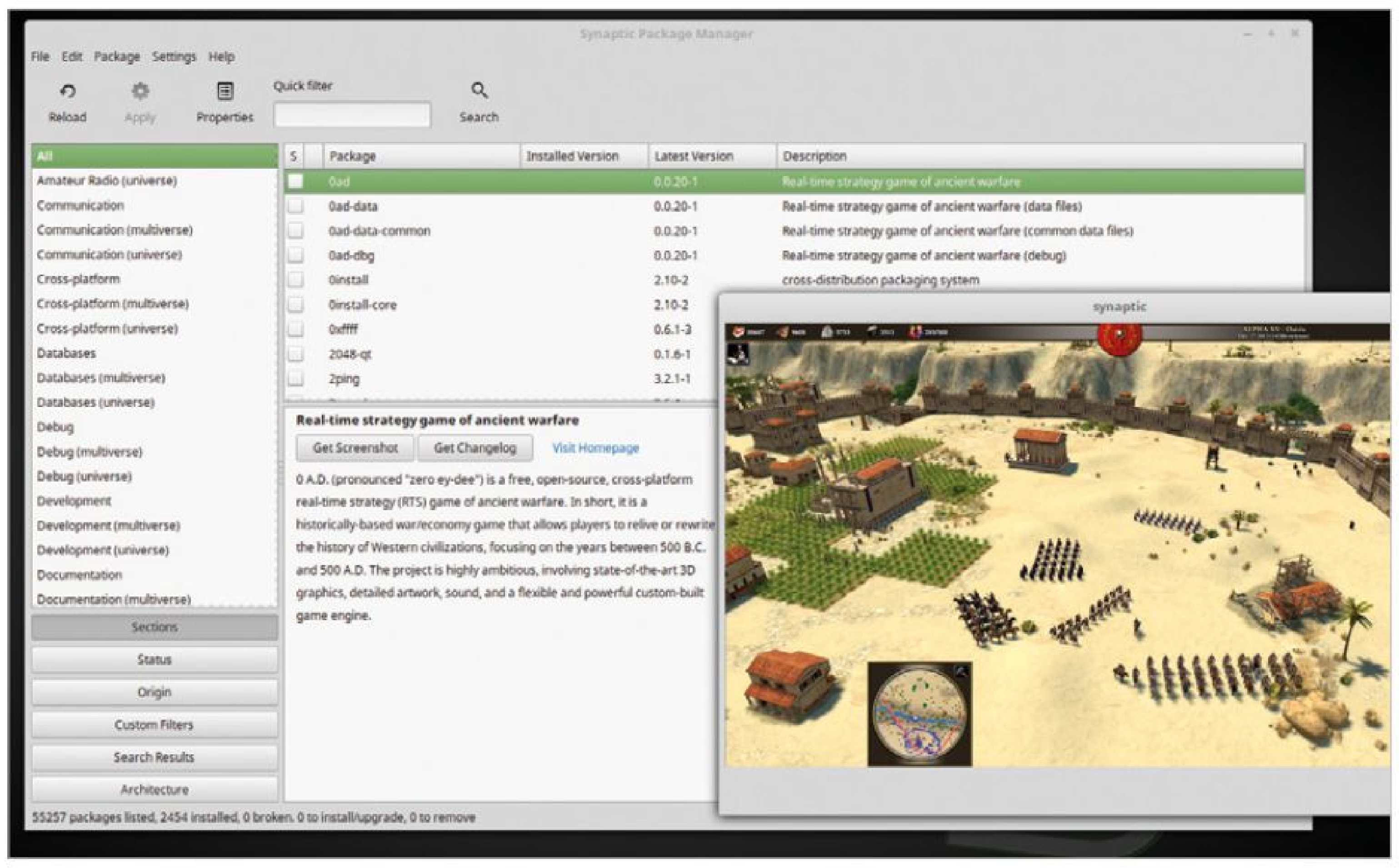
STEP 5

The right-hand side of the console is split into two sections. The top section lists the apps within the chosen category, from the right column; and the lower section displays details regarding the app you've selected to view, install, remove and so on.



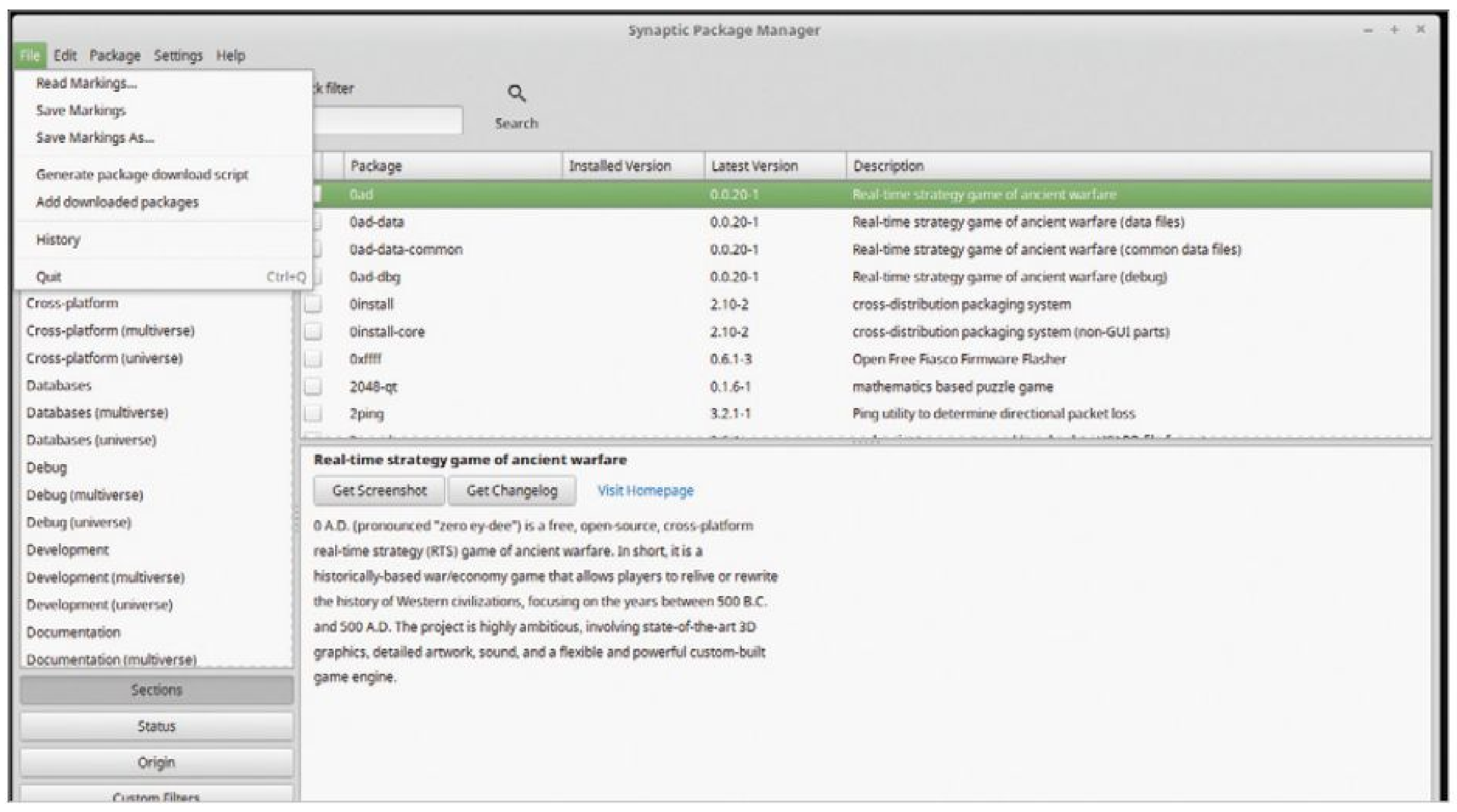
STEP 6

The details section is interesting, in that you can view any screenshots or the developer's notes with a click of a button; or visit the homepage and in some instances gain extra information regarding the app itself, including further installation instructions, or first run instructions if needed.



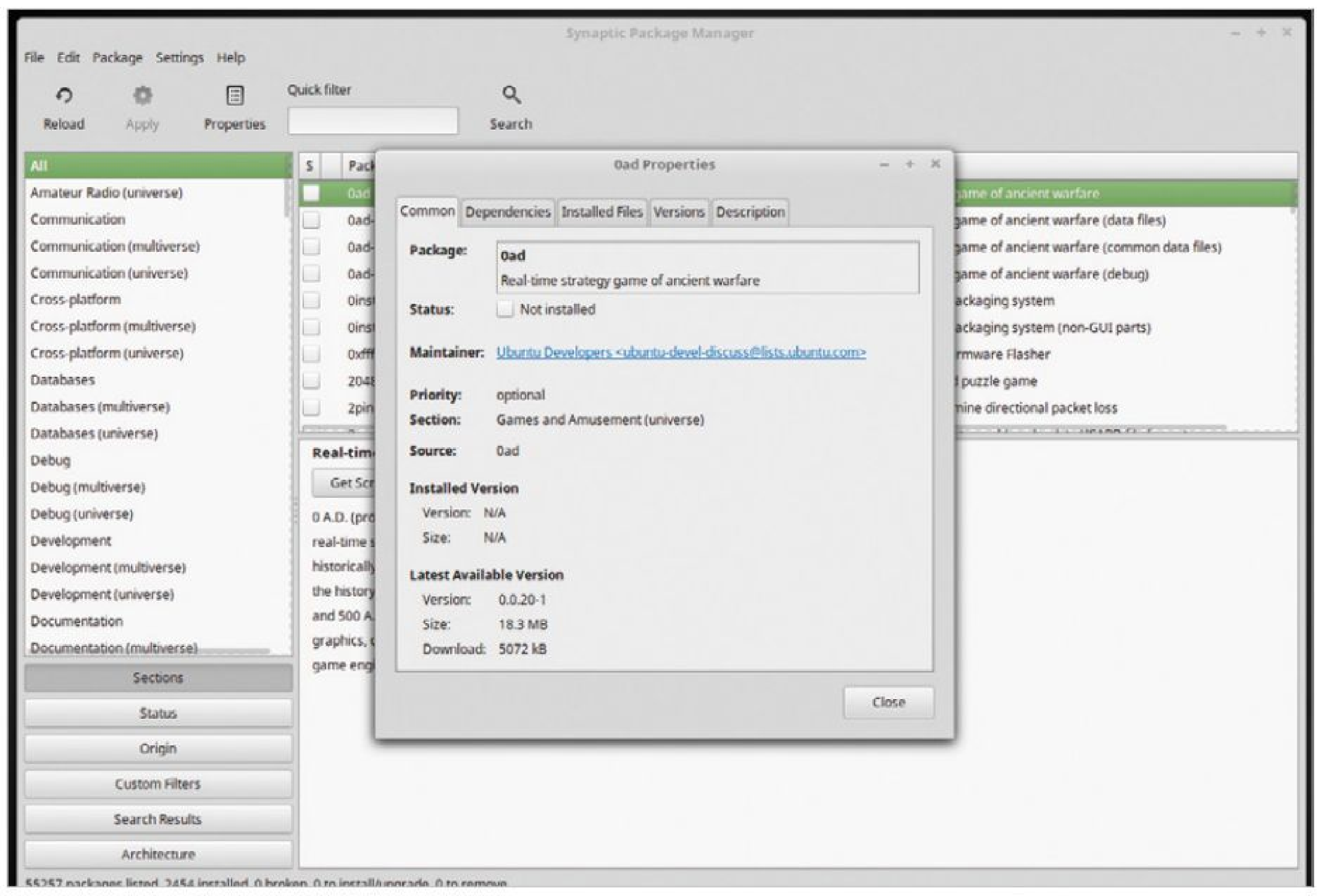
STEP 7

At the top of the console window there's a search box and buttons for Apply and Properties; more about these on the next page. There are also numerous options via the top menu toolbar: File, Edit, Package, Settings and Help. We're not going into too much detail with these in this instance, as some settings are for more advanced users.



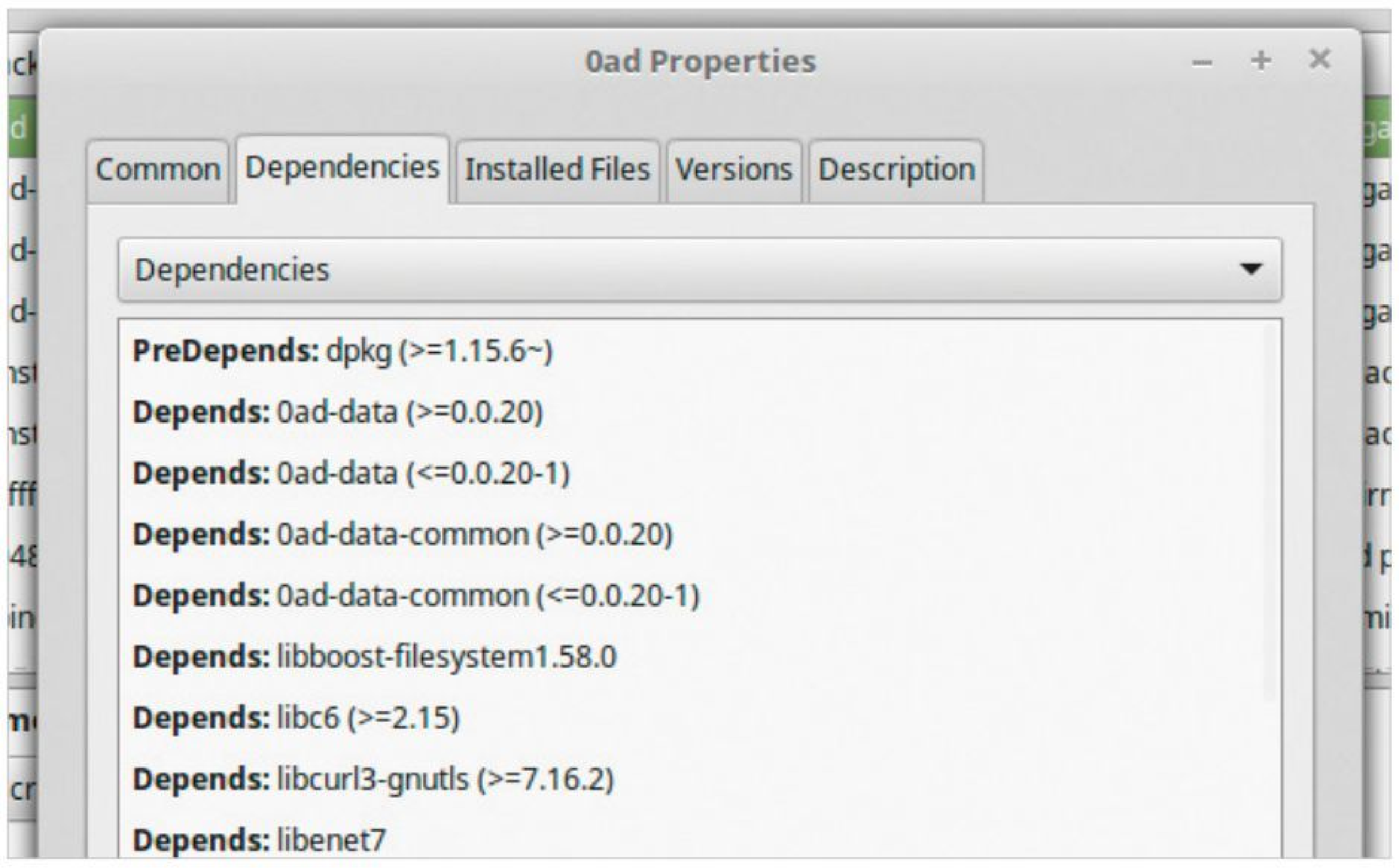
STEP 8

One element we are looking at though is the Properties button (next to the search bar). If you click the first app listed, 0ad (or 0 A.D. as it's known), then click the Properties button you are presented with a detailed pop-up window relating to the selected app.



STEP 9

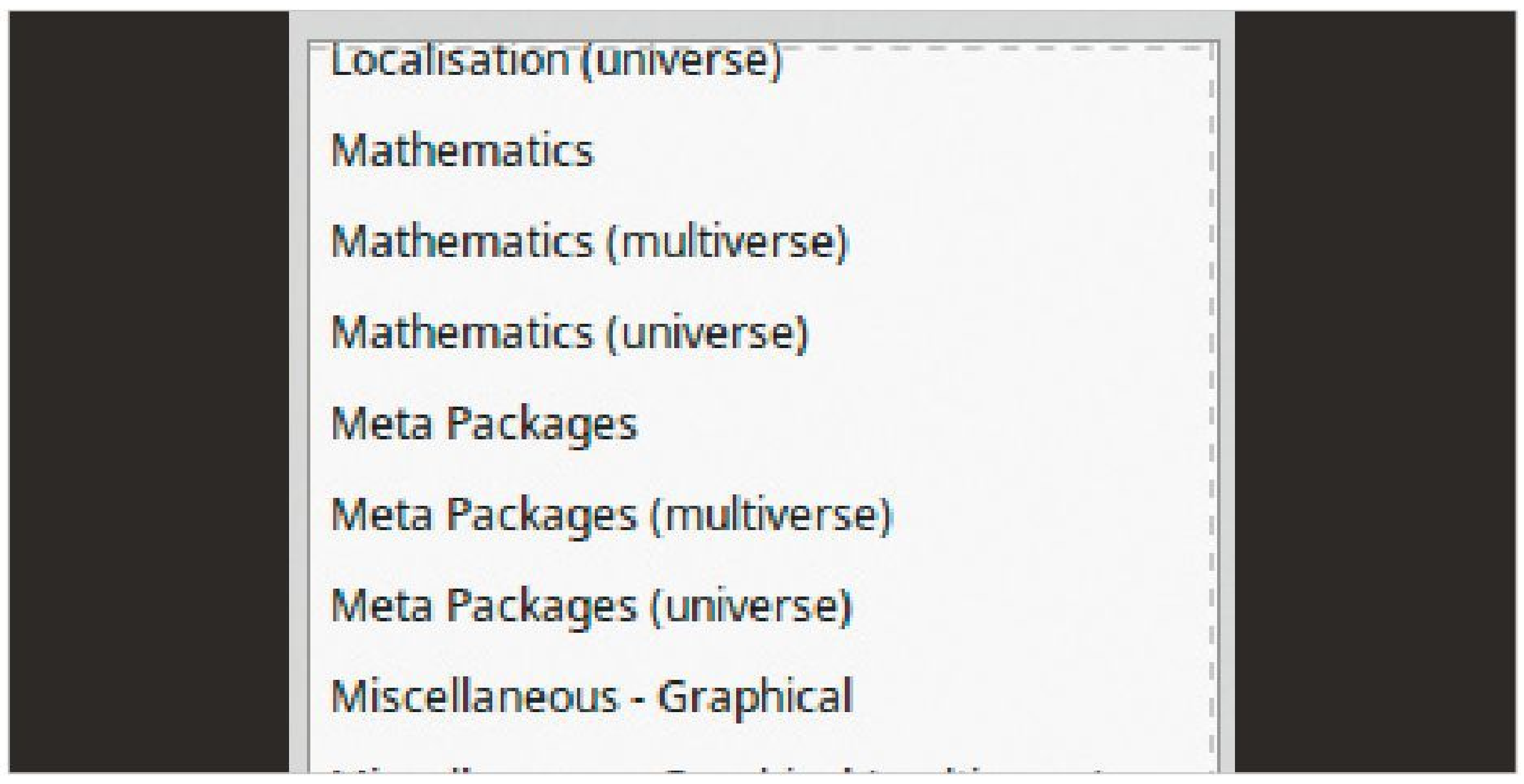
The Common tab, for example, details the app's current version, size when installed and a link to the developer or maintainer's email, as well as its current status. The Dependencies tab lists the files and other packages the app requires to be able to run, so you can check what exactly is being installed on your system.



PreDepends: dpkg (>=1.15.6~)
Depends: 0ad-data (>=0.0.20)
Depends: 0ad-data (<=0.0.20-1)
Depends: 0ad-data-common (>=0.0.20)
Depends: 0ad-data-common (<=0.0.20-1)
Depends: libboost-filesystem1.58.0
Depends: libc6 (>=2.15)
Depends: libcurl3-gnutls (>=7.16.2)
Depends: libenet7

STEP 10

One last element worth mentioning. Within the list of categories in the left-hand column, you can see entries with Universe, Multiverse, Non-Free or Restricted. All they mean is: Universe or Free, packages that are part of the Debian repositories; Multiverse or Non-Free, packages like video codecs, may be closed source; Restricted, packages with closed source elements, such as drivers.



Localisation (universe)
Mathematics
Mathematics (multiverse)
Mathematics (universe)
Meta Packages
Meta Packages (multiverse)
Meta Packages (universe)
Miscellaneous - Graphical

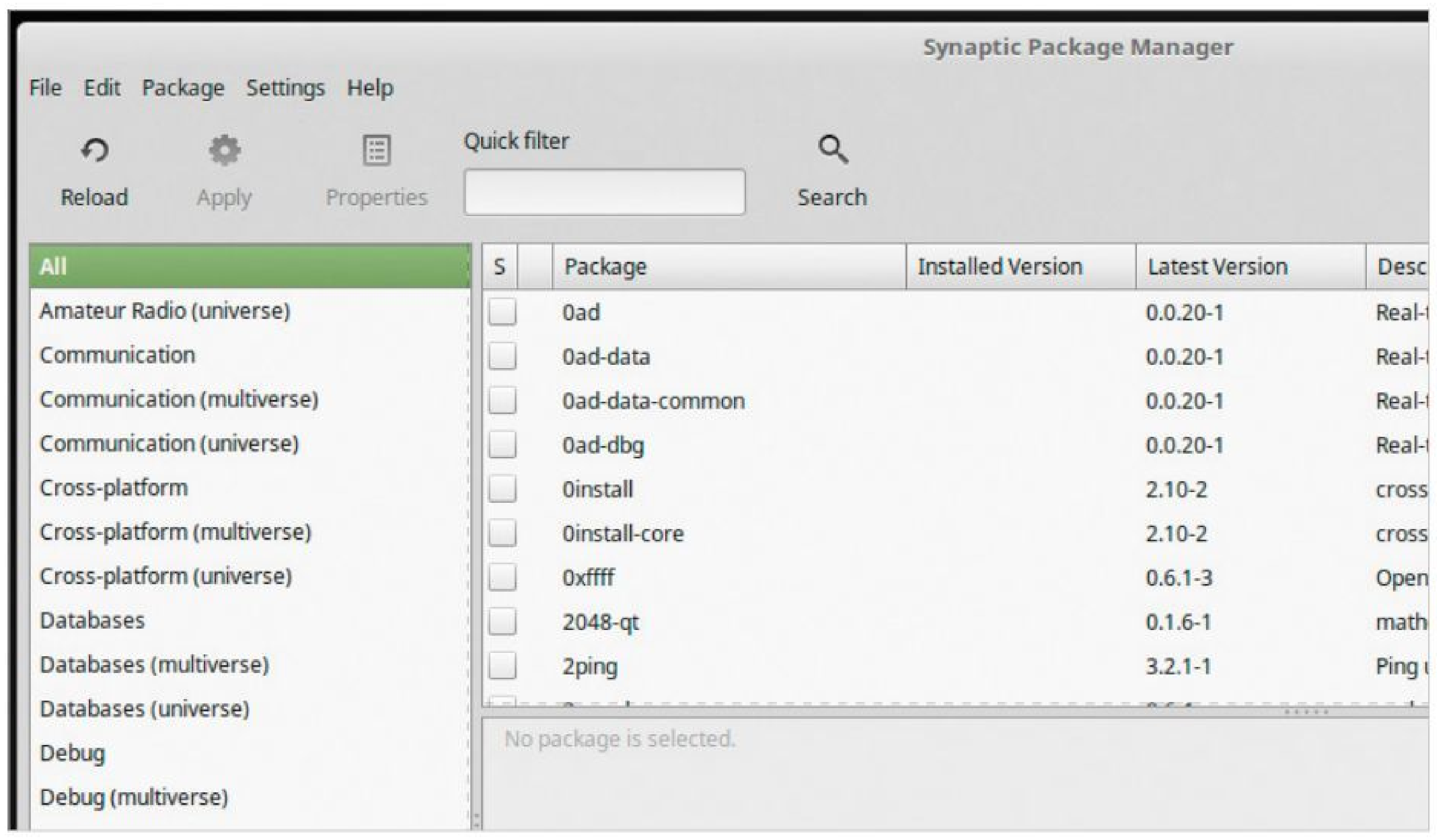
Installing from Synaptic Package Manager

Let's look at how you go about finding and installing an app from the available 55,078 (at the time of writing) packages. The apps available cover a multitude of categories, for many different languages, so you're spoiled for choice.

INSTALLING APPS

Although the User Interface for Synaptic isn't quite as friendly as that of the Software Manager, it's still a remarkably powerful front end to package delivery and installation. Think of it as another excellent tool to use.

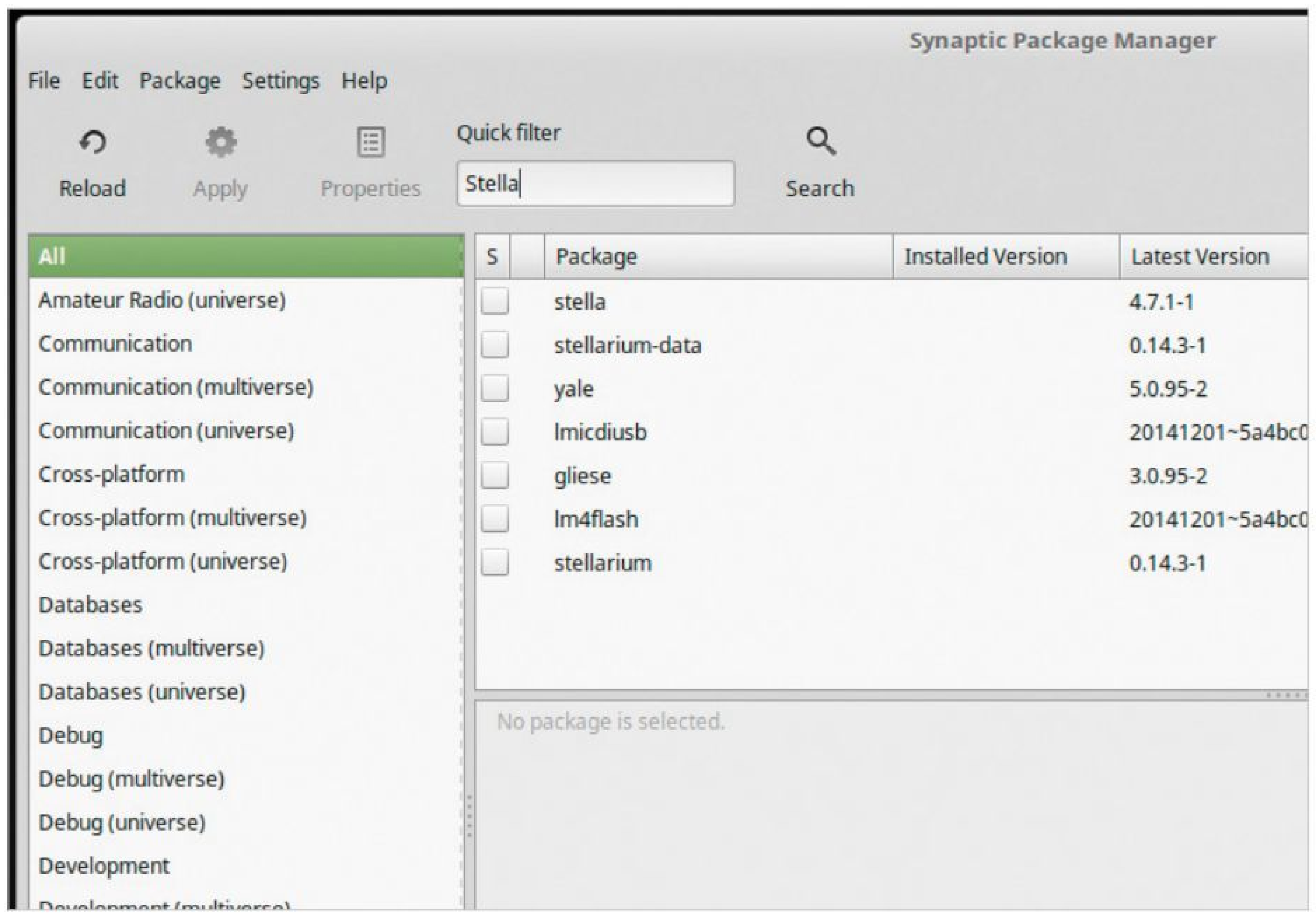
STEP 1 If you've closed down Synaptic Package Manager, relaunch it via the Mint Menu as we did on the previous page. Enter your password and expand the console window edges to get a better view of what's going on.


Synaptic Package Manager
File Edit Package Settings Help
Reload
Apply
Properties
Quick filter
Search
All
Amateur Radio (universe)
Communication
Communication (multiverse)
Communication (universe)
Cross-platform
Cross-platform (multiverse)
Cross-platform (universe)
Databases
Databases (multiverse)
Databases (universe)
Debug
Debug (multiverse)

S	Package	Installed Version	Latest Version	Desc
☐	0ad		0.0.20-1	Real-
☐	0ad-data		0.0.20-1	Real-
☐	0ad-data-common		0.0.20-1	Real-
☐	0ad-dbg		0.0.20-1	Real-
☐	0install		2.10-2	cross
☐	0install-core		2.10-2	cross
☐	0xffff		0.6.1-3	Open
☐	2048-qt		0.1.6-1	math
☐	2ping		3.2.1-1	Ping

No package is selected.

STEP 2 Let's install a package, or app, that we've already looked at, Stella. If you recall from the Installing from the Software Manager section, Stella is an old Atari console emulator. You can scroll through the Games categories on the left-hand column but you may be there for some time. Instead, enter Stella into the search box and hit Enter.

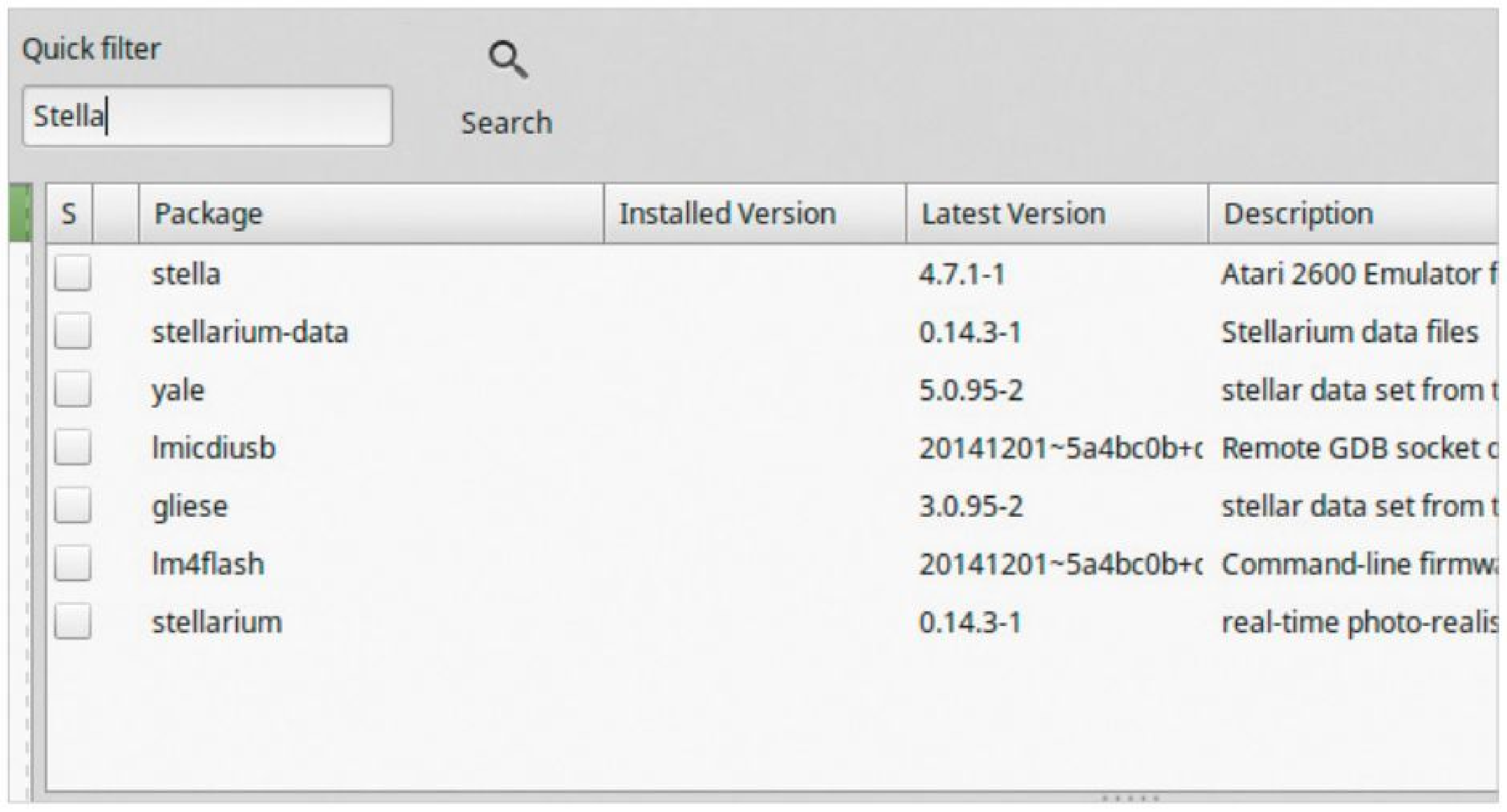

Synaptic Package Manager
File Edit Package Settings Help
Reload
Apply
Properties
Quick filter
Search
All
Amateur Radio (universe)
Communication
Communication (multiverse)
Communication (universe)
Cross-platform
Cross-platform (multiverse)
Cross-platform (universe)
Databases
Databases (multiverse)
Databases (universe)
Debug
Debug (multiverse)
Debug (universe)
Development

Quick filter: Stella

S	Package	Installed Version	Latest Version
☐	stella		4.7.1-1
☐	stellarium-data		0.14.3-1
☐	yale		5.0.95-2
☐	lmicdiusb		20141201~5a4bc0
☐	gliese		3.0.95-2
☐	lm4flash		20141201~5a4bc0
☐	stellarium		0.14.3-1

No package is selected.

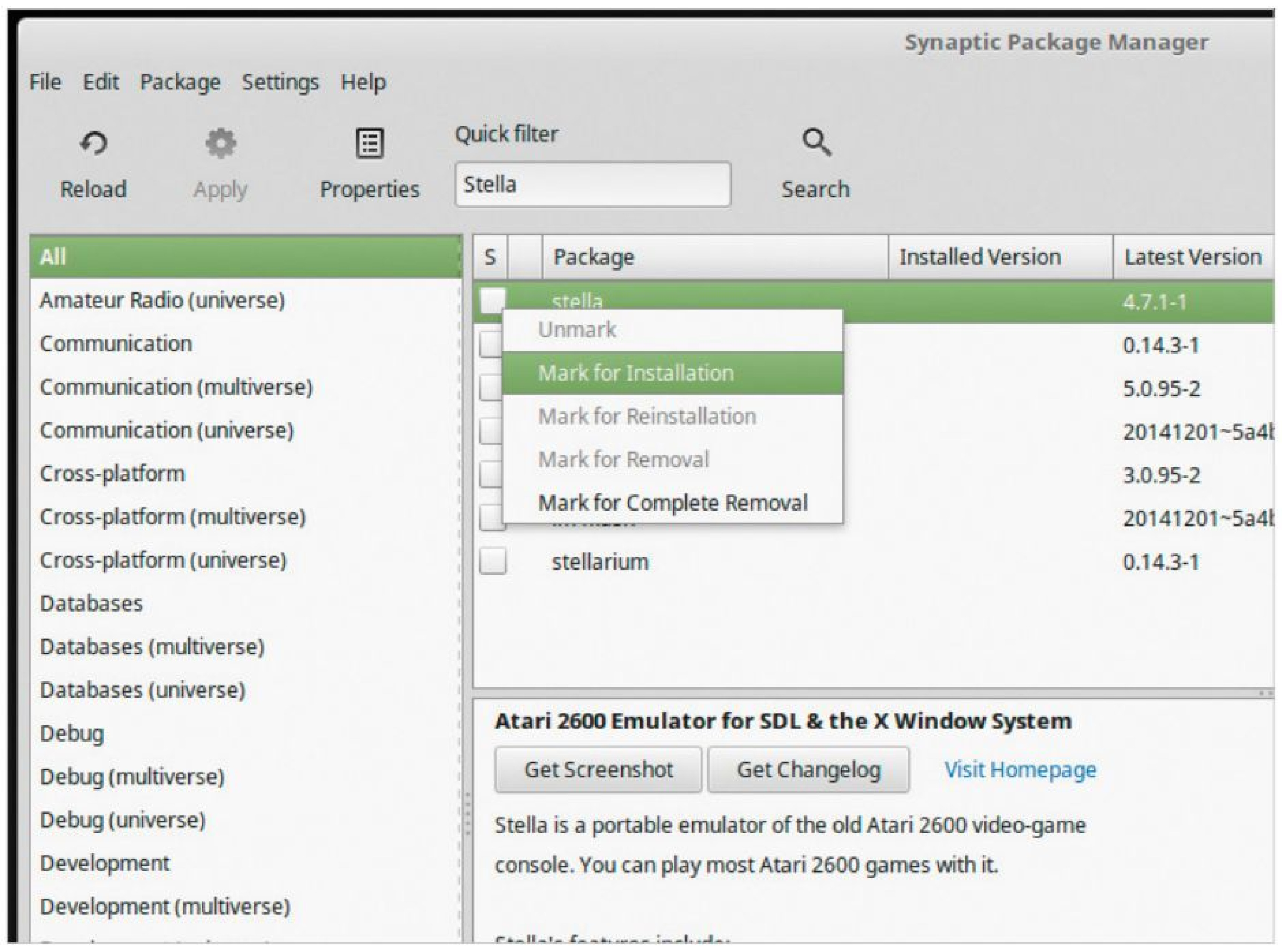
STEP 3 You can see a number of returned search results, all relating in this instance the word 'stella'. The one we're after is the top most result, Stella version 4.7.1-1 (correct at the time of writing), with the Description: Atari 2600 emulator for SDL & the X Window System.


Quick filter
Search

Quick filter: Stella

S	Package	Installed Version	Latest Version	Description
☐	stella		4.7.1-1	Atari 2600 Emulator f
☐	stellarium-data		0.14.3-1	Stellarium data files
☐	yale		5.0.95-2	stellar data set from t
☐	lmicdiusb		20141201~5a4bc0b+c	Remote GDB socket c
☐	gliese		3.0.95-2	stellar data set from t
☐	lm4flash		20141201~5a4bc0b+c	Command-line firmw
☐	stellarium		0.14.3-1	real-time photo-realis

STEP 4 If you click the Stella entry in the right top section the relevant app information will be detailed in the lower section; as we looked at on the previous pages. To install the app, click the box to the left of the app's title. You can then see a menu pop-up, click the Mark for Installation option.


Synaptic Package Manager
File Edit Package Settings Help
Reload
Apply
Properties
Quick filter
Search
All
Amateur Radio (universe)
Communication
Communication (multiverse)
Communication (universe)
Cross-platform
Cross-platform (multiverse)
Cross-platform (universe)
Databases
Databases (multiverse)
Databases (universe)
Debug
Debug (multiverse)
Debug (universe)
Development
Development (multiverse)
Unmark
Mark for Installation
Mark for Reinstallation
Mark for Removal
Mark for Complete Removal
Get Screenshot
Get Changelog
Visit Homepage

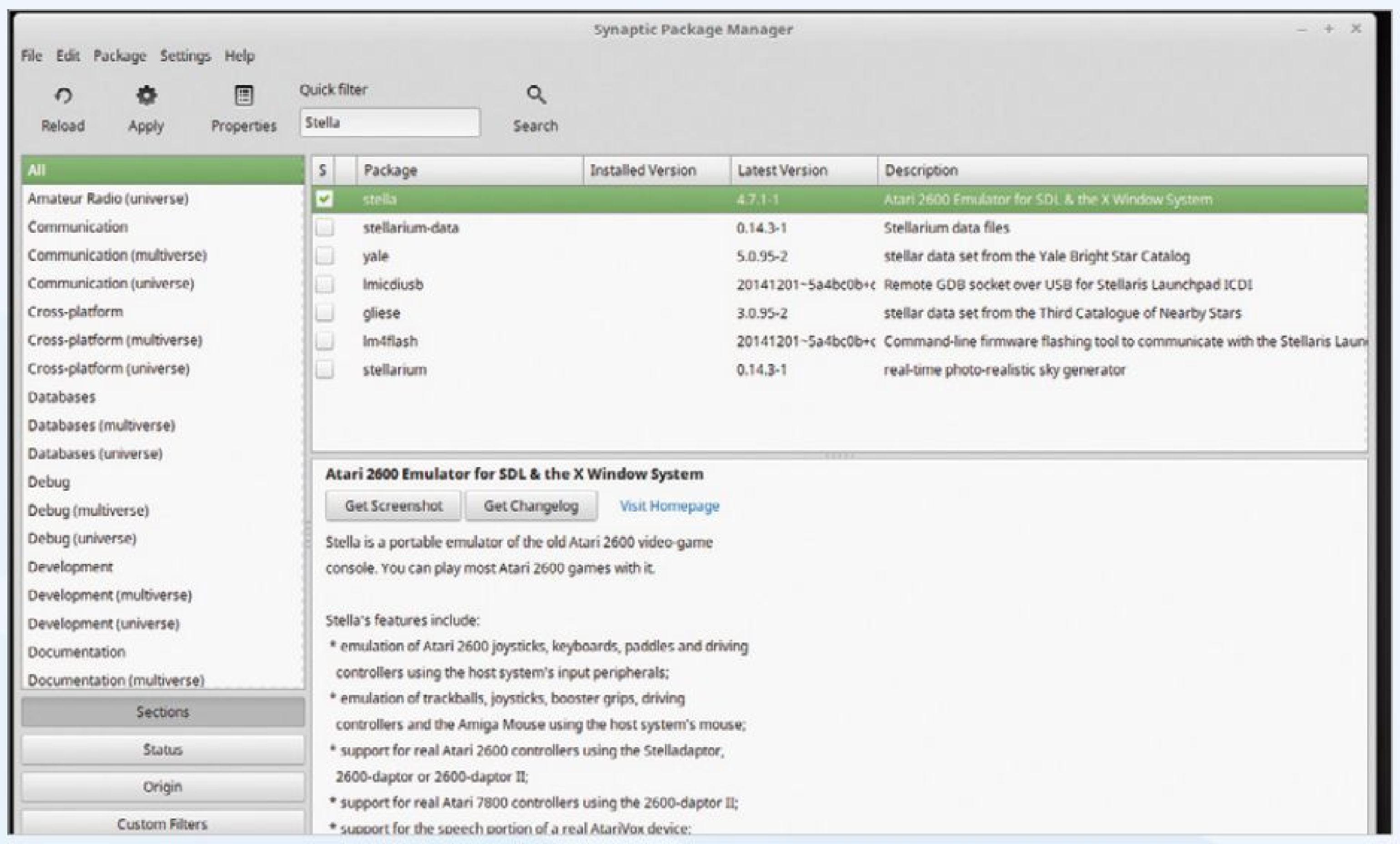
Quick filter: Stella

S	Package	Installed Version	Latest Version
☐	stella		4.7.1-1
☐			0.14.3-1
☐			5.0.95-2
☐			20141201~5a4t
☐			3.0.95-2
☐			20141201~5a4t
☐	stellarium		0.14.3-1

Atari 2600 Emulator for SDL & the X Window System

Stella is a portable emulator of the old Atari 2600 video-game console. You can play most Atari 2600 games with it.

STEP 5 Stella will now have a green tick in the box, meaning that it's marked to be installed. There is a brief set of information at the very bottom of the Synaptic console window, in this case telling you that there's one package to install/upgrade and 4364KB will be used.


Synaptic Package Manager
File Edit Package Settings Help
Reload Apply Properties
Quick filter
Search
Sections
Status
Origin
Custom Filters

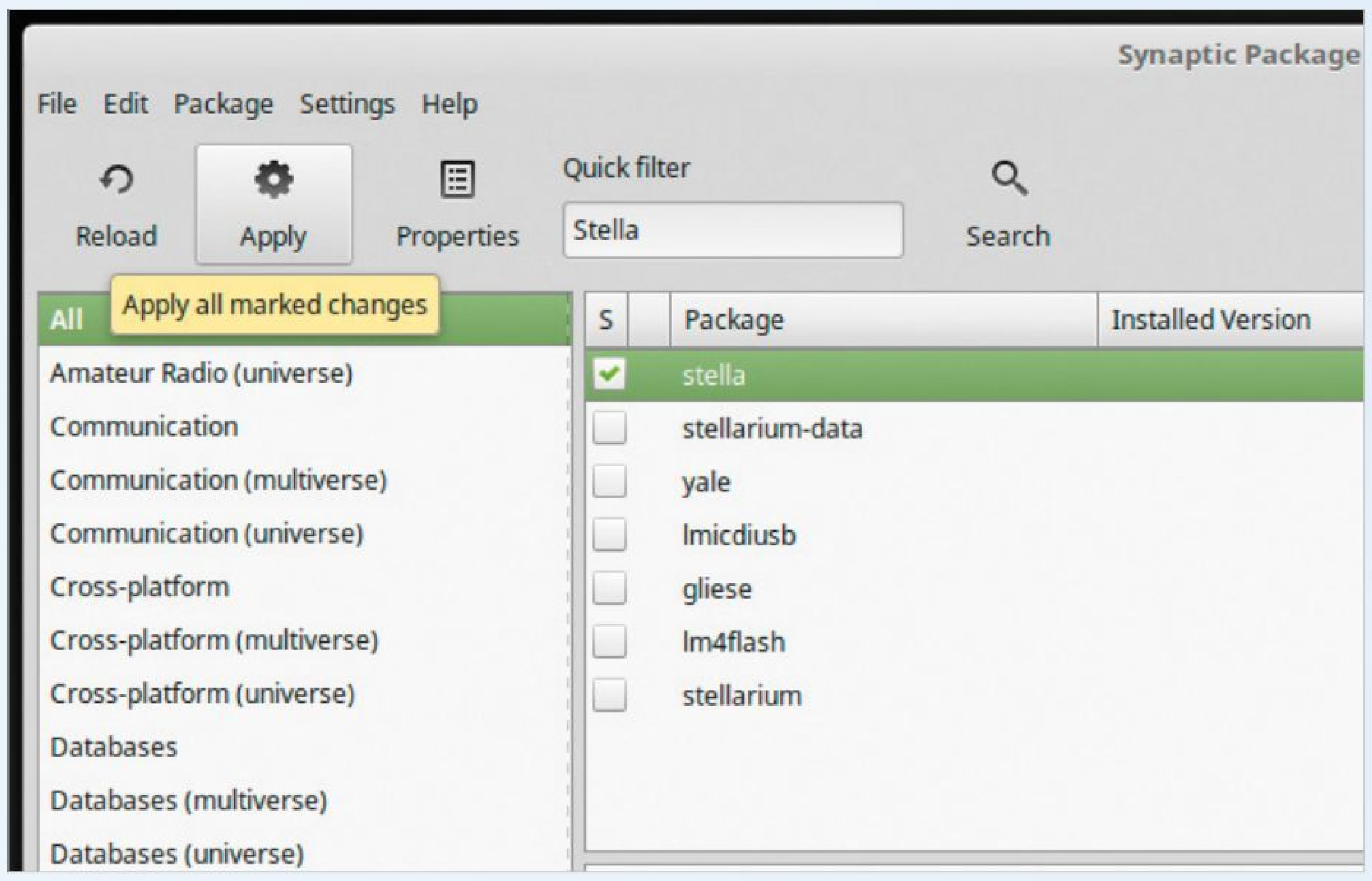
S	Package	Installed Version	Latest Version	Description
☑	stella		4.7.1-1	Atari 2600 Emulator for SDL & the X Window System
☐	stellarium-data		0.14.3-1	Stellarium data files
☐	yale		5.0.95-2	stellar data set from the Yale Bright Star Catalog
☐	lmicdiusb		20141201~5a4bc0b+c	Remote GDB socket over USB for Stellaris Launchpad ICDI
☐	gliese		3.0.95-2	stellar data set from the Third Catalogue of Nearby Stars
☐	lm4flash		20141201~5a4bc0b+c	Command-line firmware flashing tool to communicate with the Stellaris Laun
☐	stellarium		0.14.3-1	real-time photo-realistic sky generator

Atari 2600 Emulator for SDL & the X Window System

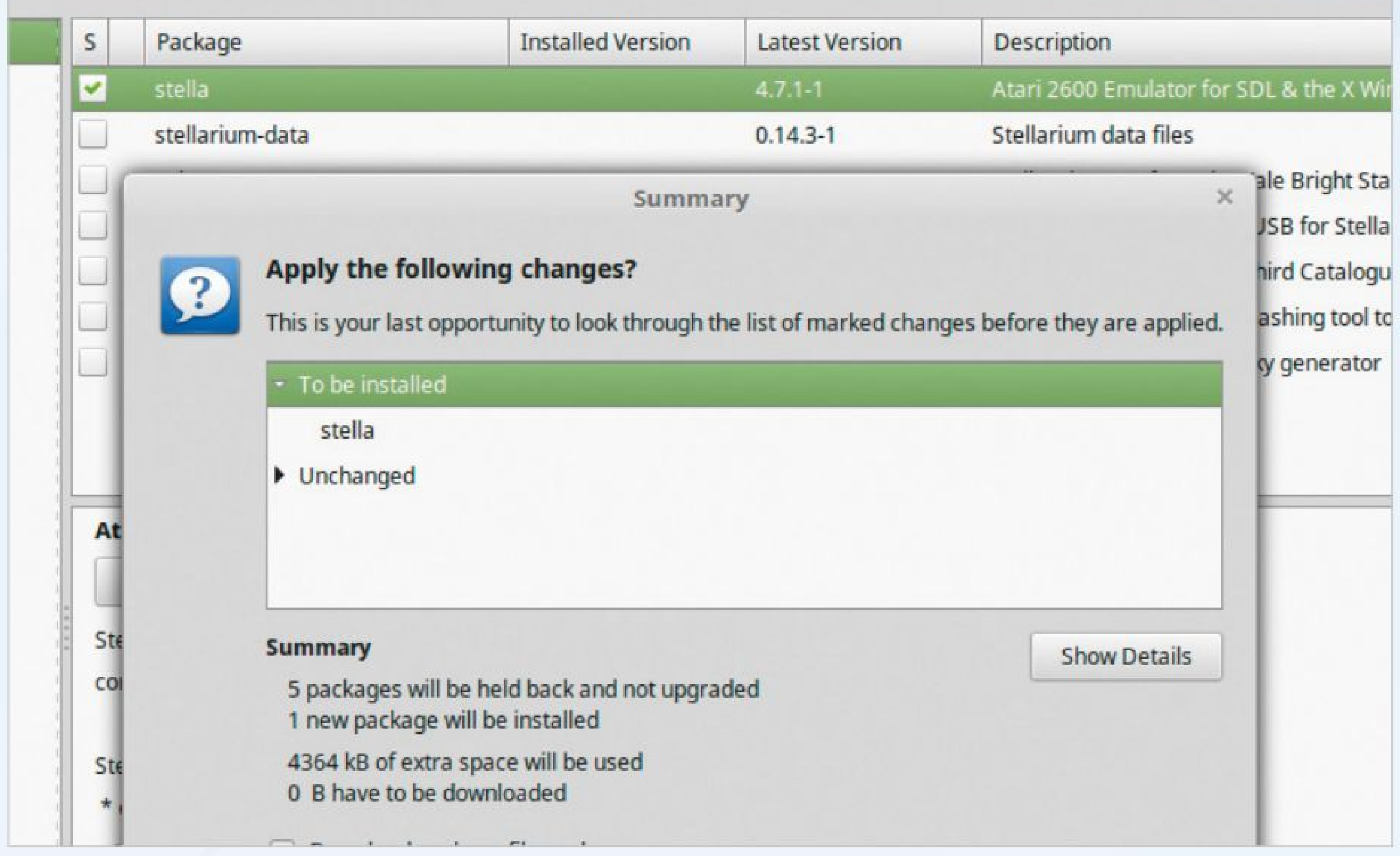
Stella is a portable emulator of the old Atari 2600 video-game console. You can play most Atari 2600 games with it.

Stella's features include:
* emulation of Atari 2600 joysticks, keyboards, paddles and driving controllers using the host system's input peripherals;
* emulation of trackballs, joysticks, booster grips, driving controllers and the Amiga Mouse using the host system's mouse;
* support for real Atari 2600 controllers using the Stelladaptor, 2600-daptor or 2600-daptor II;
* support for real Atari 7800 controllers using the 2600-daptor II;
* support for the speech portion of a real AtariVox device;

STEP 6 The app you've marked installs when you click the Apply button, found at the top of the Synaptic console window. This gives you time to look for other apps you want to install, so you're not having to go back and forth marking and installing. When you're ready, click the Apply button to begin the installation.


Synaptic Package
File Edit Package Settings Help
Reload
Apply
Properties
Quick filter
Stella
Search
Apply all marked changes
All
Amateur Radio (universe)
Communication
Communication (multiverse)
Communication (universe)
Cross-platform
Cross-platform (multiverse)
Cross-platform (universe)
Databases
Databases (multiverse)
Databases (universe)
S
Package
Installed Version
stella
stellarium-data
yale
lmicdiusb
gliese
lm4flash
stellarium

STEP 7 When you click the Apply button, you get a Summary box detailing the actions that are about to take place. In this example, we're installing Stella. You can view the details and expand the information if you want, but when you're ready, click Apply in the Summary window.

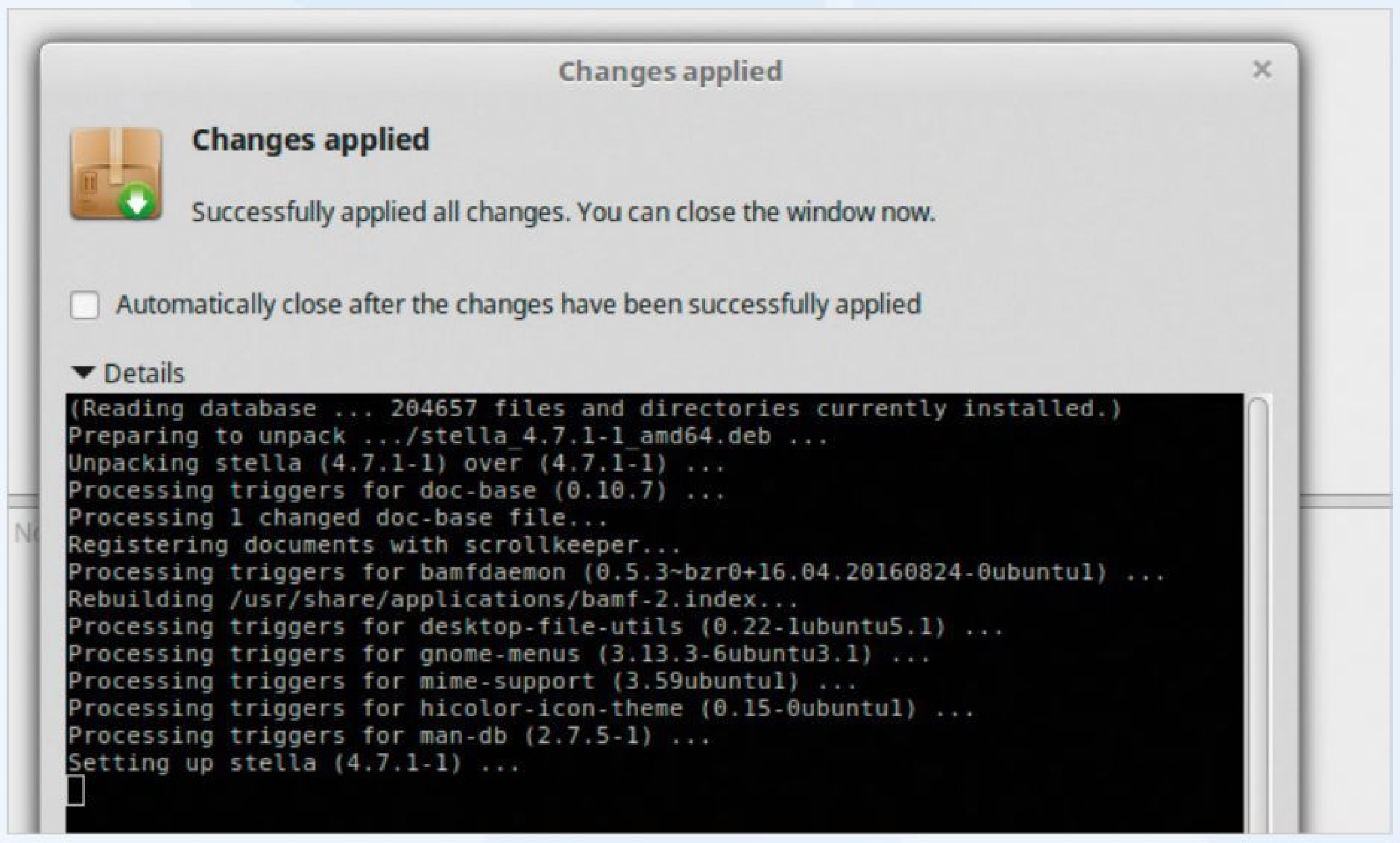

Summary
To be installed
stella
Unchanged
Show Details

Apply the following changes?

This is your last opportunity to look through the list of marked changes before they are applied.

Summary
5 packages will be held back and not upgraded
1 new package will be installed
4364 kB of extra space will be used
0 B have to be downloaded

STEP 8 Depending on how big the app you're installing is, Synaptic will display a progress bar detailing the installation process. When it's done you are presented with a Changes Applied window, along with any success or failure message. You can read the details but otherwise click the Close button.


Changes applied
Details

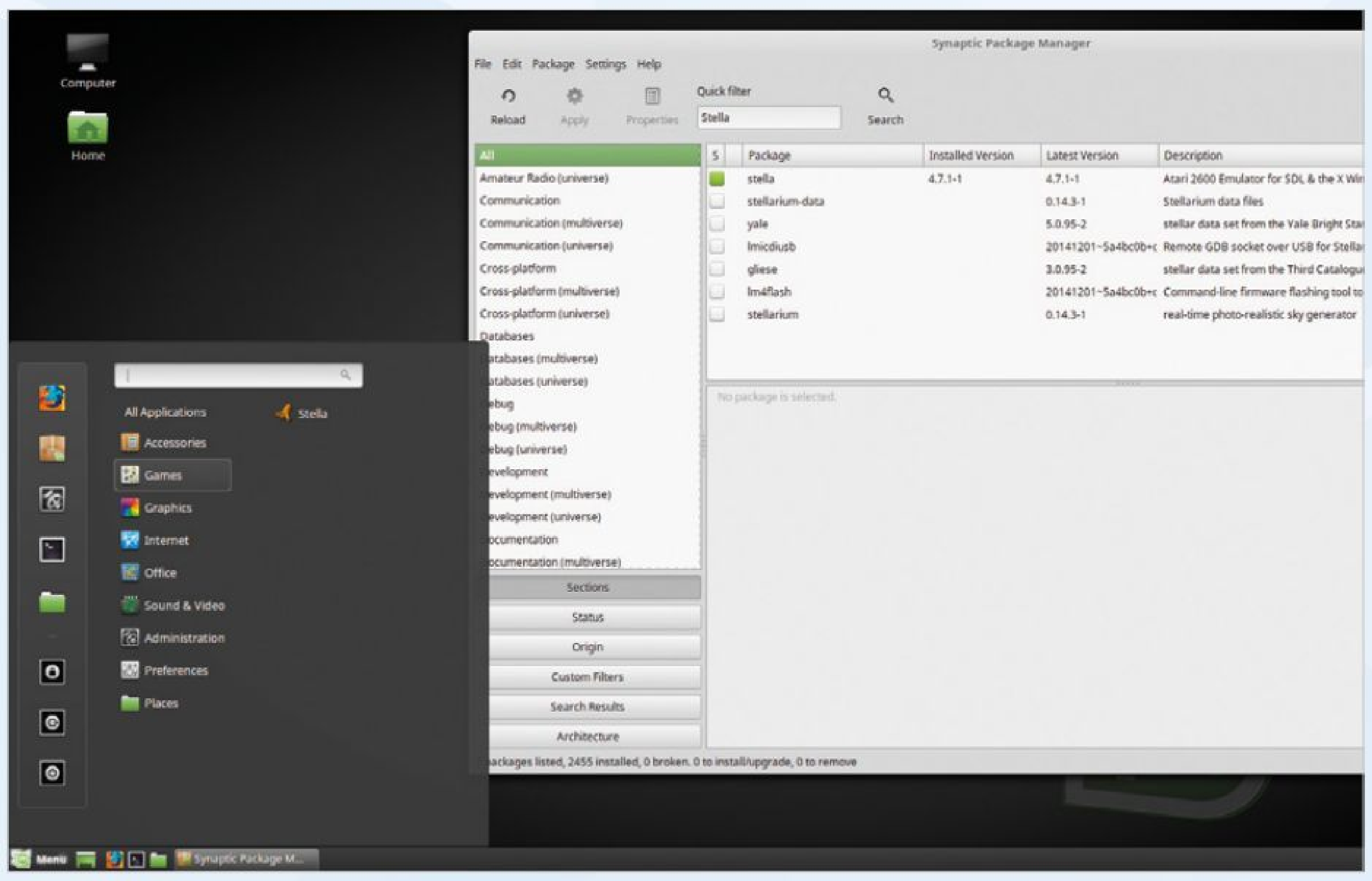
Changes applied

Successfully applied all changes. You can close the window now.

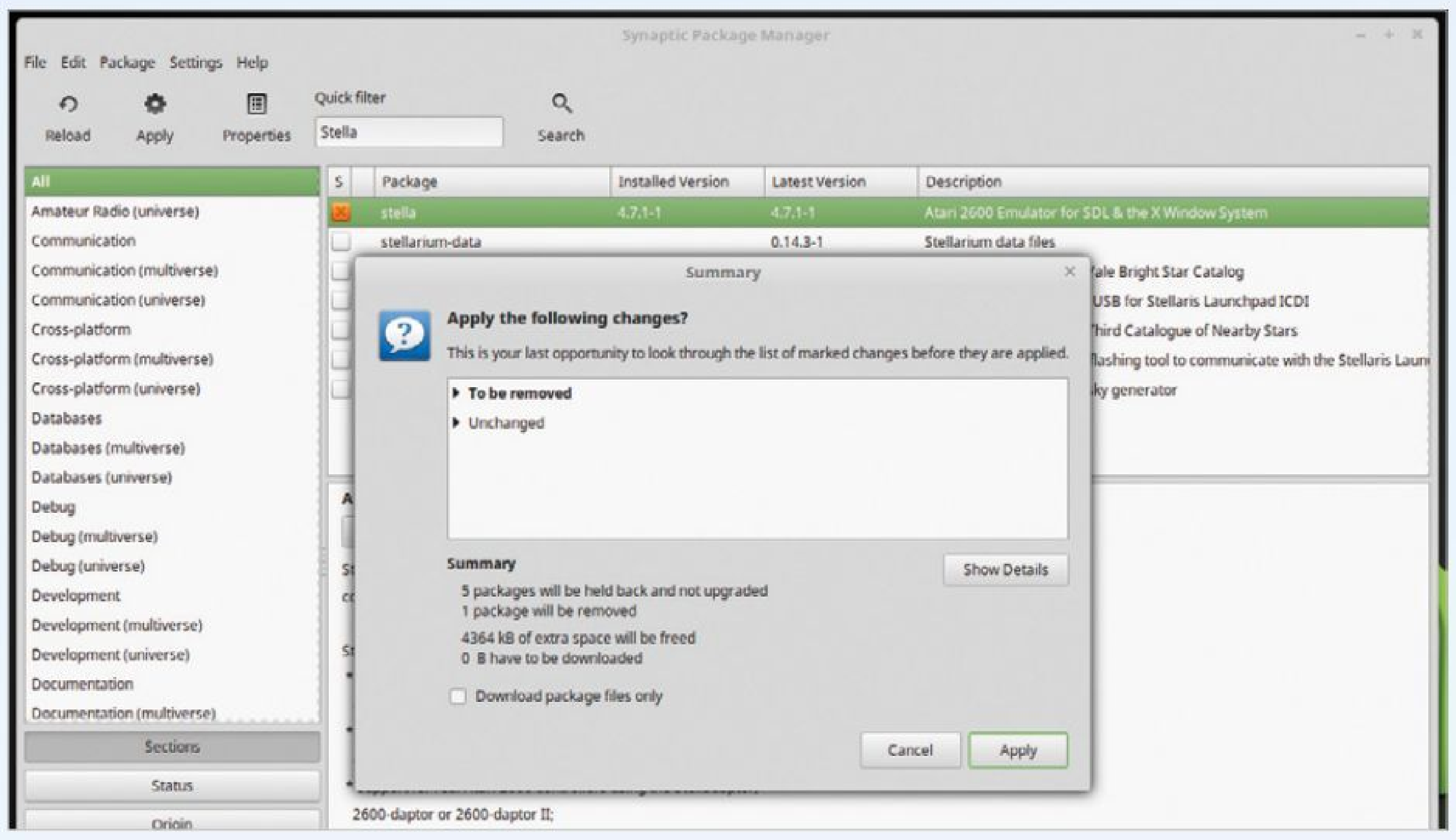
☐ Automatically close after the changes have been successfully applied

```
(Reading database ... 204657 files and directories currently installed.)
Preparing to unpack .../stella_4.7.1-1_amd64.deb ...
Unpacking stella (4.7.1-1) over (4.7.1-1) ...
Processing triggers for doc-base (0.10.7) ...
Processing 1 changed doc-base file...
Registering documents with scrollkeeper...
Processing triggers for bamfdaemon (0.5.3~bzr0+16.04.20160824-0ubuntu1) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils (0.22-1ubuntu5.1) ...
Processing triggers for gnome-menus (3.13.3-6ubuntu3.1) ...
Processing triggers for mime-support (3.59ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.15-0ubuntu1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up stella (4.7.1-1) ...
```

STEP 9 After clicking Close, Synaptic will refresh and Stella will have a solid green square next to its name to signify it's installed in Linux Mint. If you click on the Mint Menu once again, as with the Software Manager installation process, you can see that Mint has automatically added it under the Games category.


Computer
Home
All Applications
Stella
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Synaptic Package Manager
Menu

STEP 10 The uninstallation process is the reverse of what you've just done. Tick the green box next to Stella and choose the option Mark for Removal. Mark for Complete Removal isn't always advised, as you could remove a package that's needed by other apps. Stella now has a red X next to its name. Click both Apply buttons to uninstall.


Summary
To be removed
Unchanged
Show Details
Cancel
Apply

Apply the following changes?

This is your last opportunity to look through the list of marked changes before they are applied.

Summary
5 packages will be held back and not upgraded
1 package will be removed
4364 kB of extra space will be freed
0 B have to be downloaded

☐ Download package files only

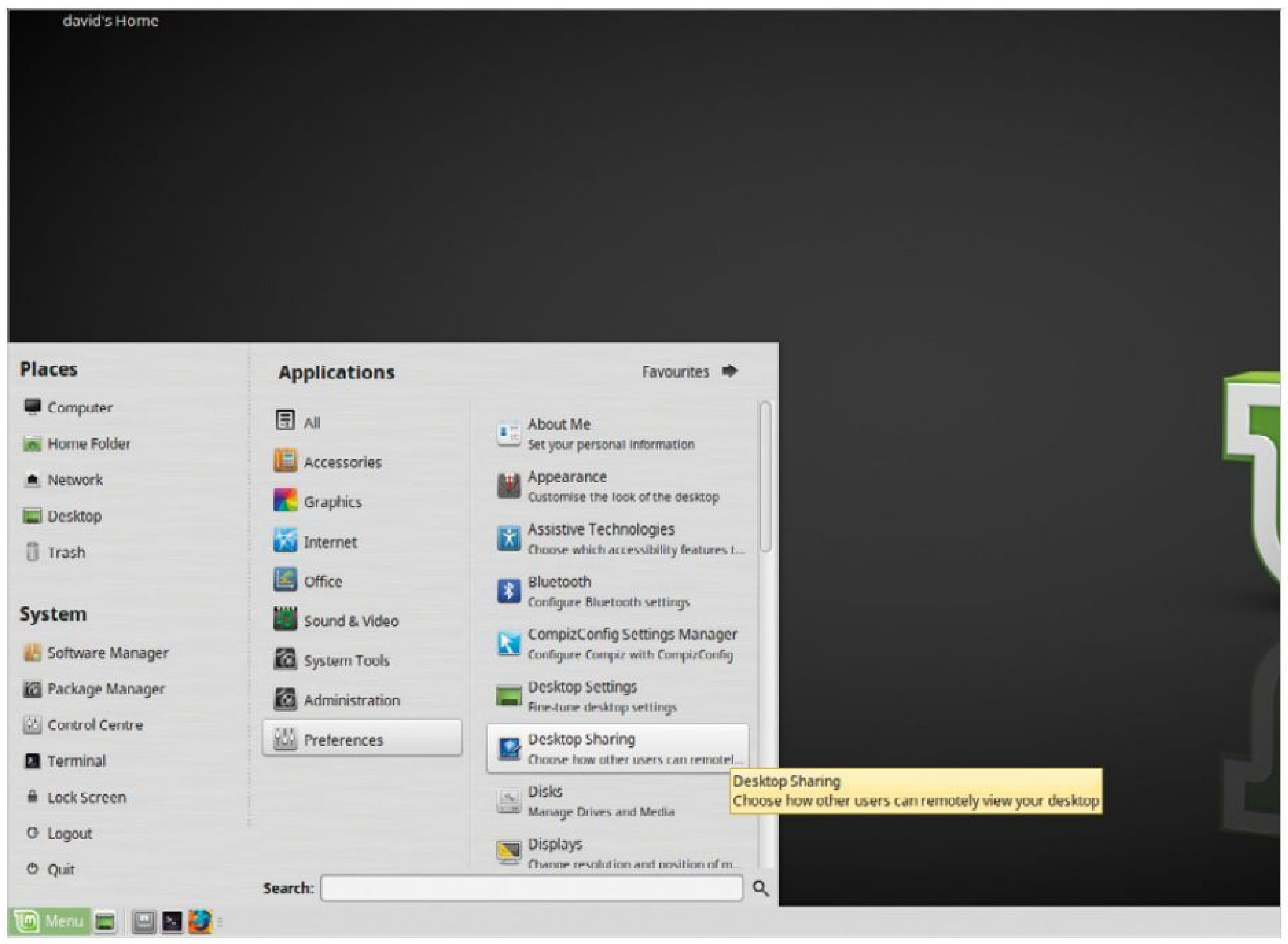
Desktop Sharing

Desktop Sharing enables you to attach to another operating system's desktop and use it remotely as if you were sat in front of it. With this you can provide remote help or access a computer that doesn't have a monitor, keyboard or mouse.

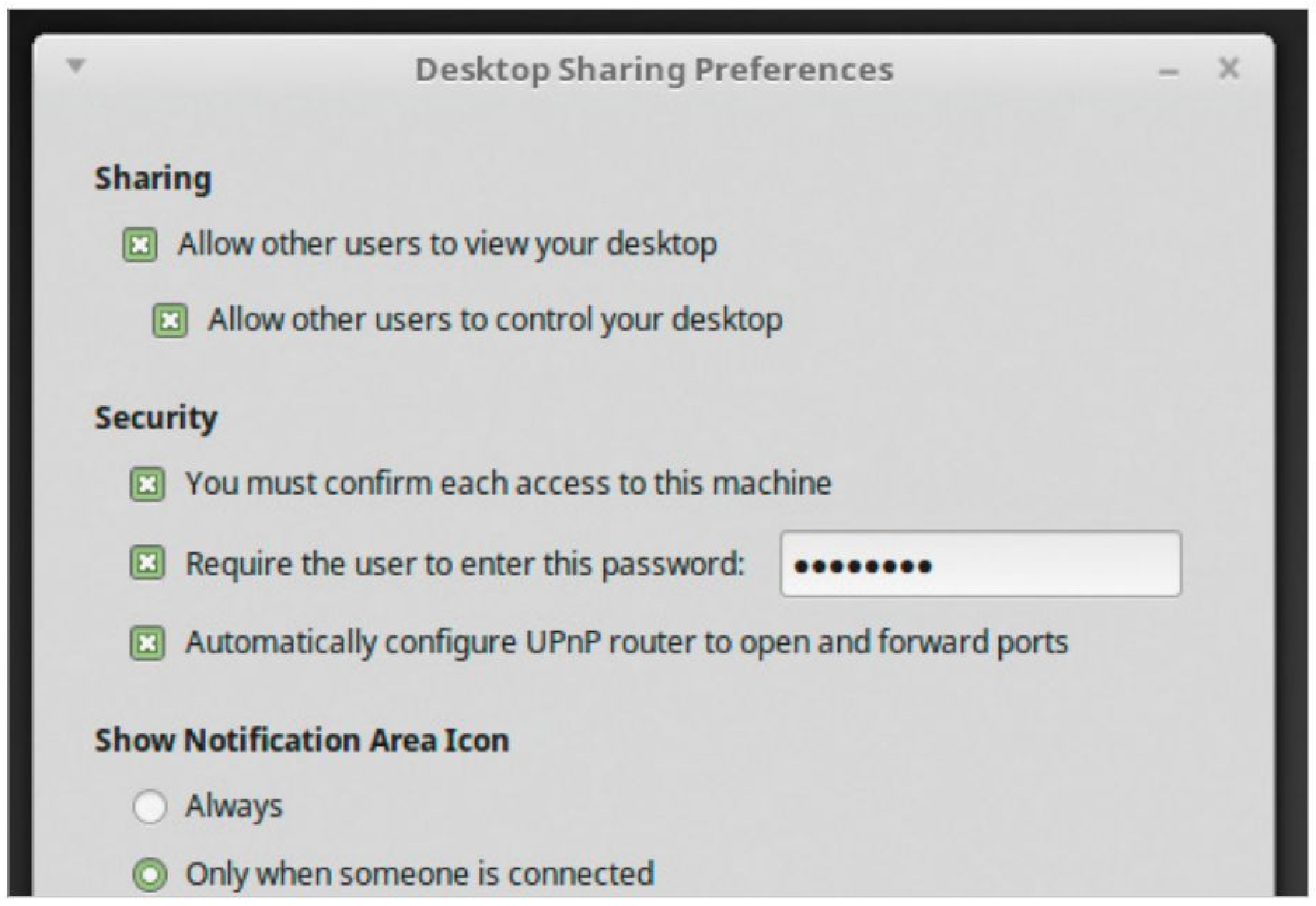
CONNECTING TO MINT

Sadly, although Desktop Sharing works with Mint Cinnamon, it doesn't display or work very well due to the complexity of the user interface. Therefore, we're going to swap over to MATE for this tutorial.

STEP 1 Linux Mint has its own Desktop Sharing app preinstalled; you can find it via the Mint Menu by searching for desktop sharing or under the Preferences category. Desktop Sharing uses an encrypted VNC (Virtual Network Computing) protocol to allow remote connections, in a server app called Vino.


david's Home
Places
Computer
Home Folder
Network
Desktop
Trash
System
Software Manager
Package Manager
Control Centre
Terminal
Lock Screen
Logout
Quit
Applications
Favourites
All
Accessories
Graphics
Internet
Office
Sound & Video
System Tools
Administration
Preferences
About Me
Set your personal information
Appearance
Customise the look of the desktop
Assistive Technologies
Choose which accessibility features t...
Bluetooth
Configure Bluetooth settings
CompizConfig Settings Manager
Configure Compiz with CompizConfig
Desktop Settings
Fine-tune desktop settings
Desktop Sharing
Choose how other users can remotel...
Desktop Sharing
Choose how other users can remotely view your desktop
Disks
Manage Drives and Media
Displays
Change resolution and position of m...
Search:
Menu

STEP 2 Look for Desktop Sharing in the Mint Menu and click to launch the app. The Desktop Sharing Preferences console window is a pretty simple setup. You can select the option 'Allow other users to view your desktop' and make sure that 'Allow other users to control your desktop' is selected, along with 'Confirm access' and 'Require a password'.


Desktop Sharing Preferences

Sharing

☒ Allow other users to view your desktop

☒ Allow other users to control your desktop

Security

☒ You must confirm each access to this machine

☒ Require the user to enter this password: ••••••••

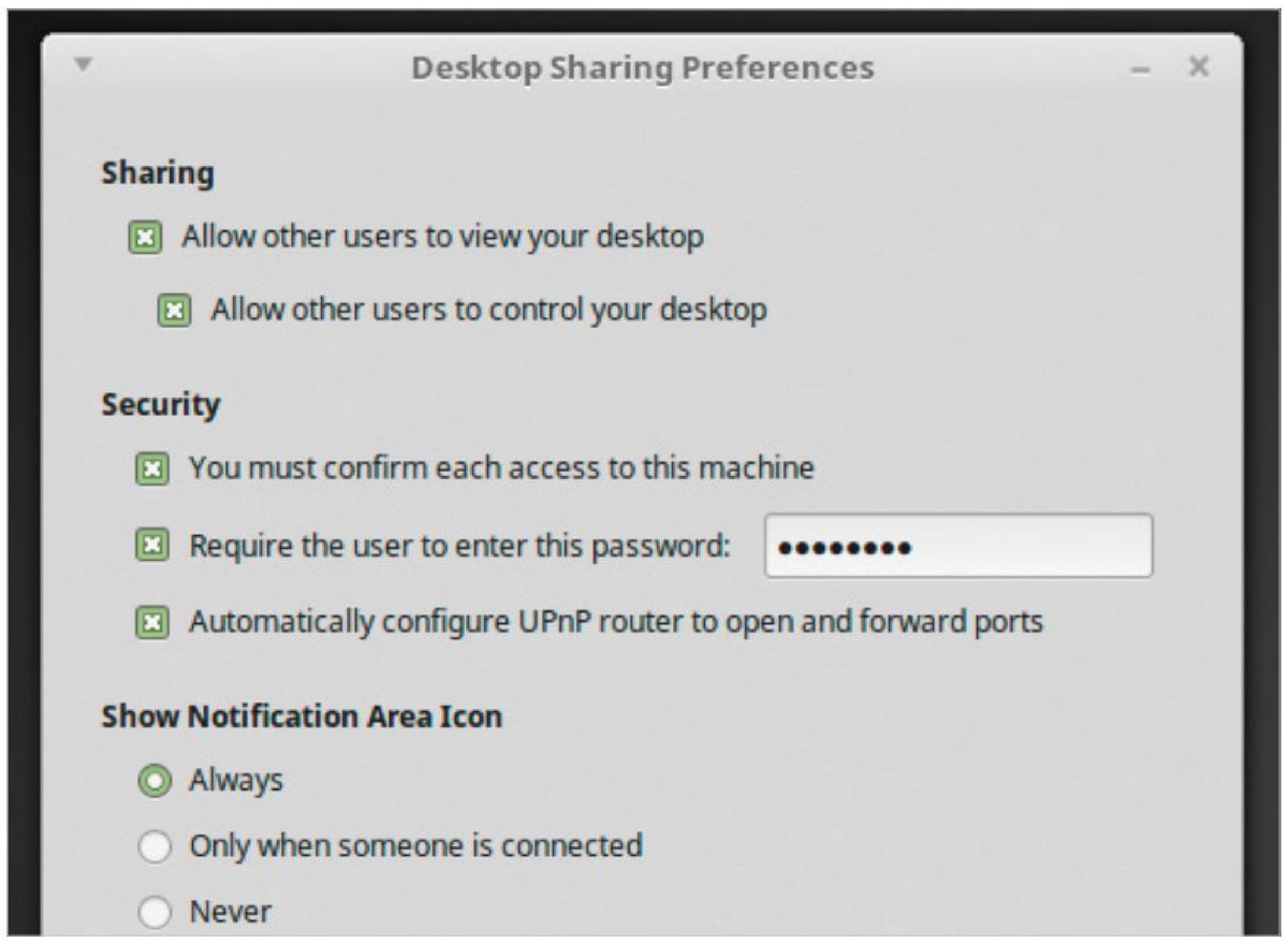
☒ Automatically configure UPnP router to open and forward ports

Show Notification Area Icon

○ Always

● Only when someone is connected

STEP 3 Enter a good password, this is what you need when attempting to remote access Linux Mint. You can also tick the boxes Automatically configure UPnP router to open and forward ports, and the Always button in the Show Notification Area Icon section. This will put an icon next to the Update Manager shield icon.


Desktop Sharing Preferences

Sharing

☒ Allow other users to view your desktop

☒ Allow other users to control your desktop

Security

☒ You must confirm each access to this machine

☒ Require the user to enter this password: ••••••••

☒ Automatically configure UPnP router to open and forward ports

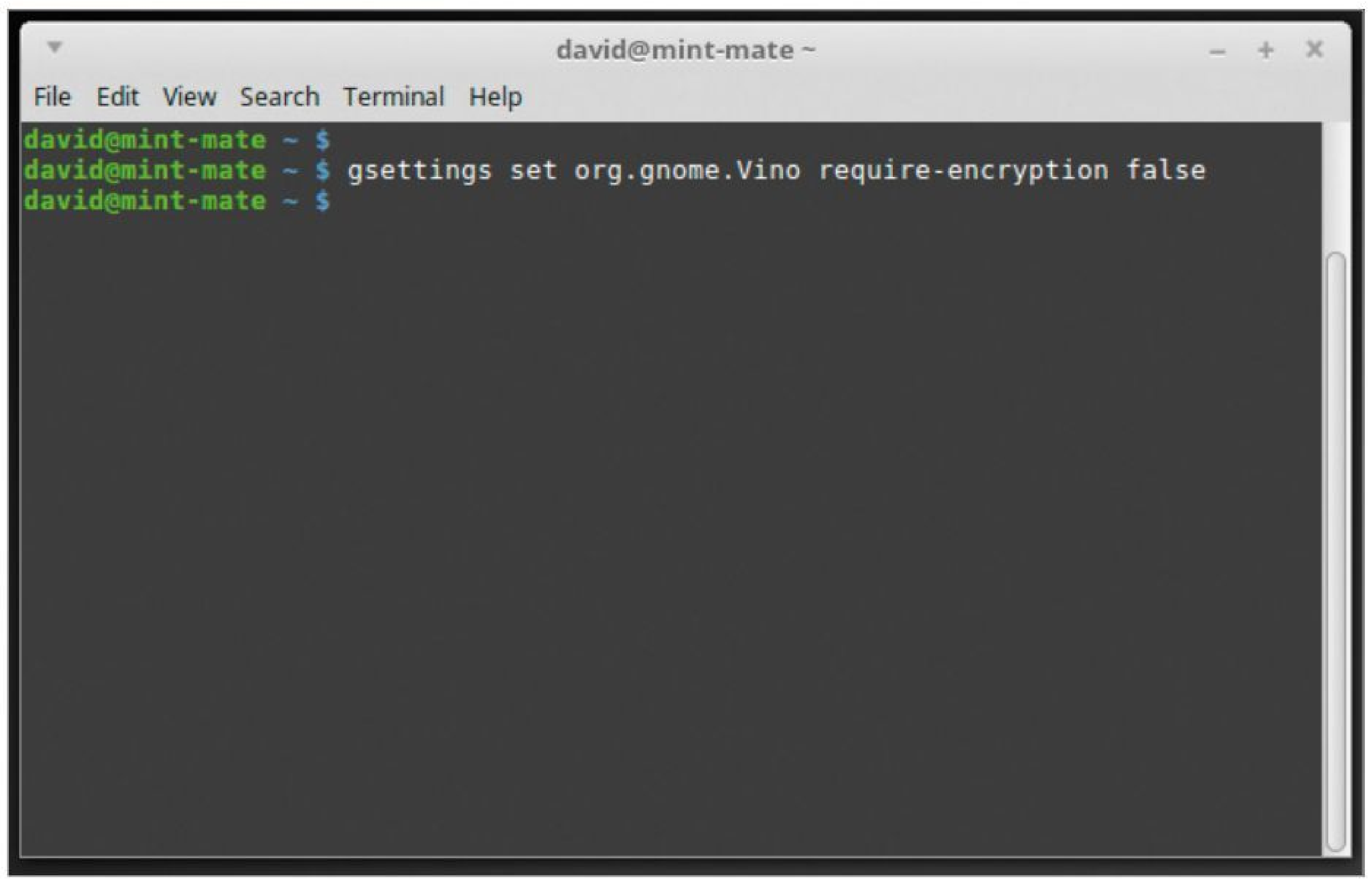
Show Notification Area Icon

● Always

○ Only when someone is connected

○ Never

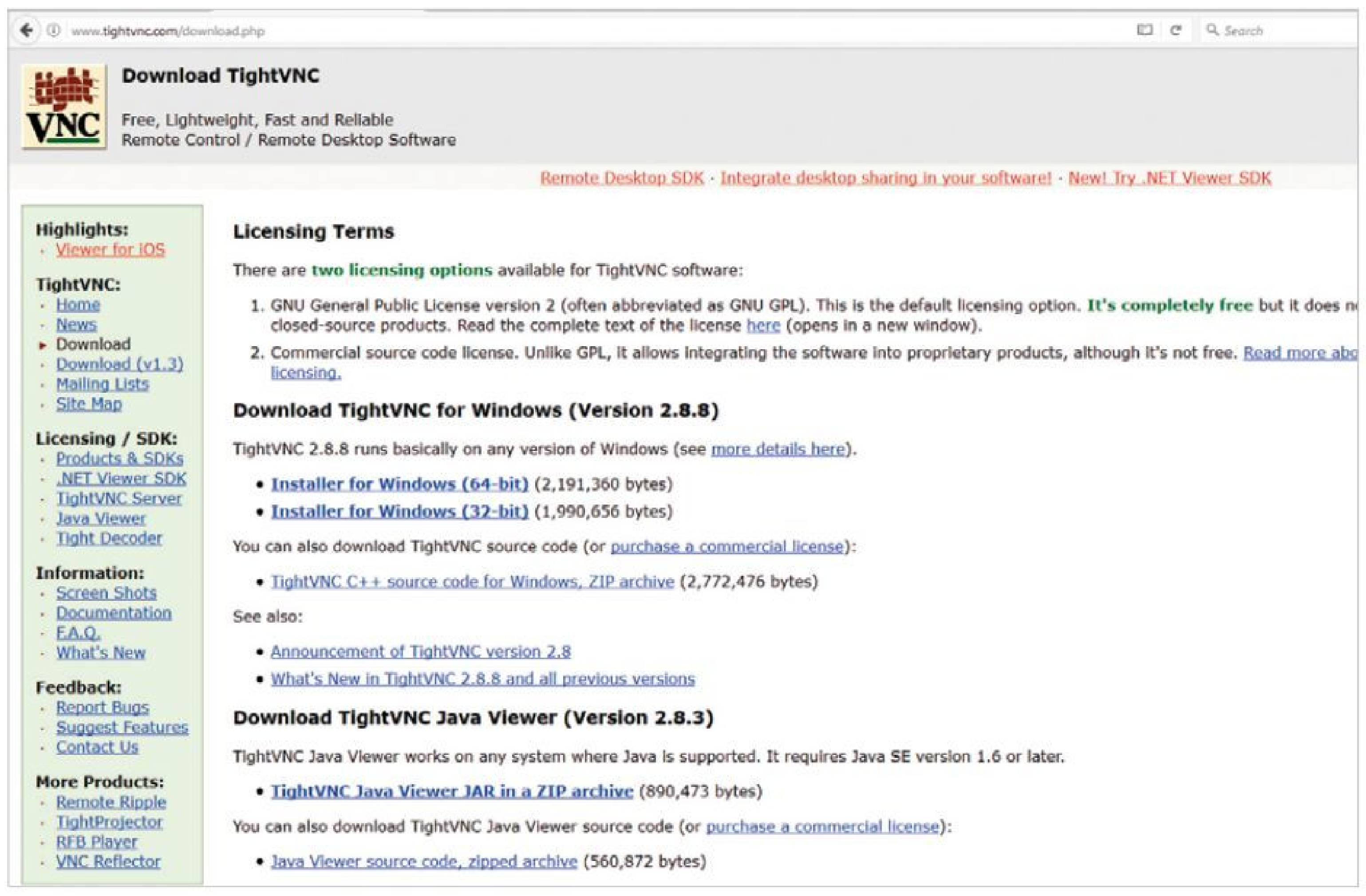
STEP 4 Once you've ticked the boxes, and created a password, click the Close button in the Desktop Sharing Preferences window; the icon will still be active in the Panel, however. As mentioned Vino is encrypted, which can cause connection issues with other VNC clients on other operating systems. To fix this, open a Terminal and enter: `gsettings set org.gnome.Vino require-encryption false.`


david@mint-mate ~
File
Edit
View
Search
Terminal
Help

```
david@mint-mate ~ $
david@mint-mate ~ $ gsettings set org.gnome.Vino require-encryption false
david@mint-mate ~ $
```

STEP 5

If you're connecting from a Windows PC, you need to install a VNC client. Open a browser to www.tightvnc.com/download.php. TightVNC is the program we use to connect to the Desktop Sharing app in Mint. Locate either 32-bit or 64-bit installer (depending on your Windows OS) and click to download the file.



www.tightvnc.com/download.php

Download TightVNC

Free, Lightweight, Fast and Reliable
Remote Control / Remote Desktop Software

Remote Desktop SDK · Integrate desktop sharing in your software! · New! Try .NET Viewer SDK

Highlights:
- Viewer for iOS

TightVNC:
- Home
- News
- Download
- Download (v1.3)
- Mailing Lists
- Site Map

Licensing / SDK:
- Products & SDKs
- .NET Viewer SDK
- TightVNC Server
- Java Viewer
- Tight Decoder

Information:
- Screen Shots
- Documentation
- F.A.Q.
- What's New

Feedback:
- Report Bugs
- Suggest Features
- Contact Us

More Products:
- Remote Ripple
- TightProjector
- RFB Player
- VNC Reflector

Licensing Terms

There are **two licensing options** available for TightVNC software:

1. GNU General Public License version 2 (often abbreviated as GNU GPL). This is the default licensing option. **It's completely free** but it does n
closed-source products. Read the complete text of the license here (opens in a new window).
2. Commercial source code license. Unlike GPL, it allows integrating the software into proprietary products, although it's not free. Read more abo
licensing.

Download TightVNC for Windows (Version 2.8.8)

TightVNC 2.8.8 runs basically on any version of Windows (see more details here).

- **Installer for Windows (64-bit)** (2,191,360 bytes)
- **Installer for Windows (32-bit)** (1,990,656 bytes)

You can also download TightVNC source code (or purchase a commercial license):

- TightVNC C++ source code for Windows, ZIP archive (2,772,476 bytes)

See also:

- Announcement of TightVNC version 2.8
- What's New in TightVNC 2.8.8 and all previous versions

Download TightVNC Java Viewer (Version 2.8.3)

TightVNC Java Viewer works on any system where Java is supported. It requires Java SE version 1.6 or later.

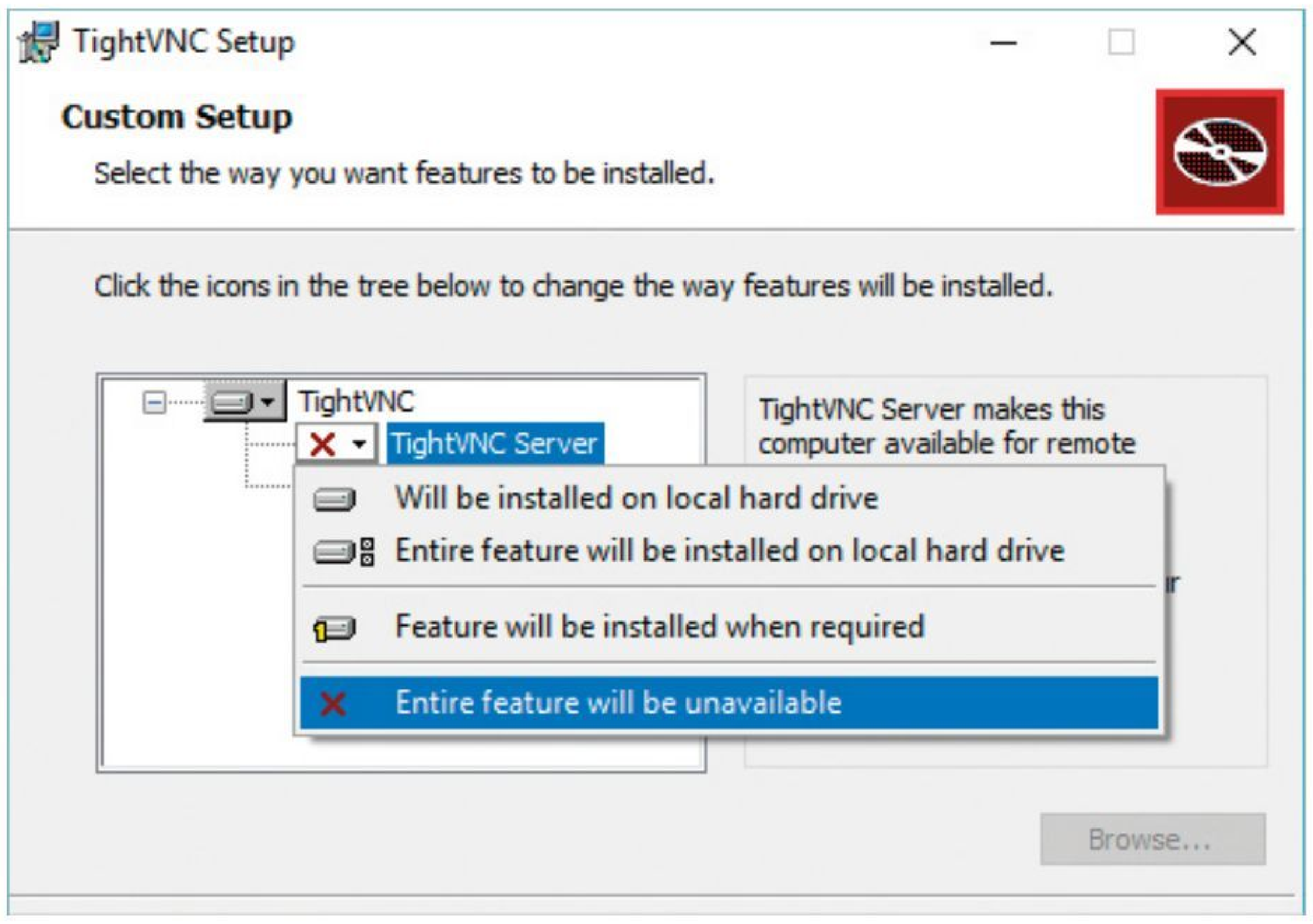
- **TightVNC Java Viewer JAR in a ZIP archive** (890,473 bytes)

You can also download TightVNC Java Viewer source code (or purchase a commercial license):

- Java Viewer source code, zipped archive (560,872 bytes)

STEP 6

When it's downloaded, launch the installer. Click Next and agree to the license. Click Custom, then the TightVNC Server option and select Entire Feature Will Be Unavailable; you only need the viewer, not the server portion of the software. Continue with the installation, making sure that there's an exception added in the Windows Firewall for TightVNC.



TightVNC Setup

Custom Setup

Select the way you want features to be installed.

Click the icons in the tree below to change the way features will be installed.

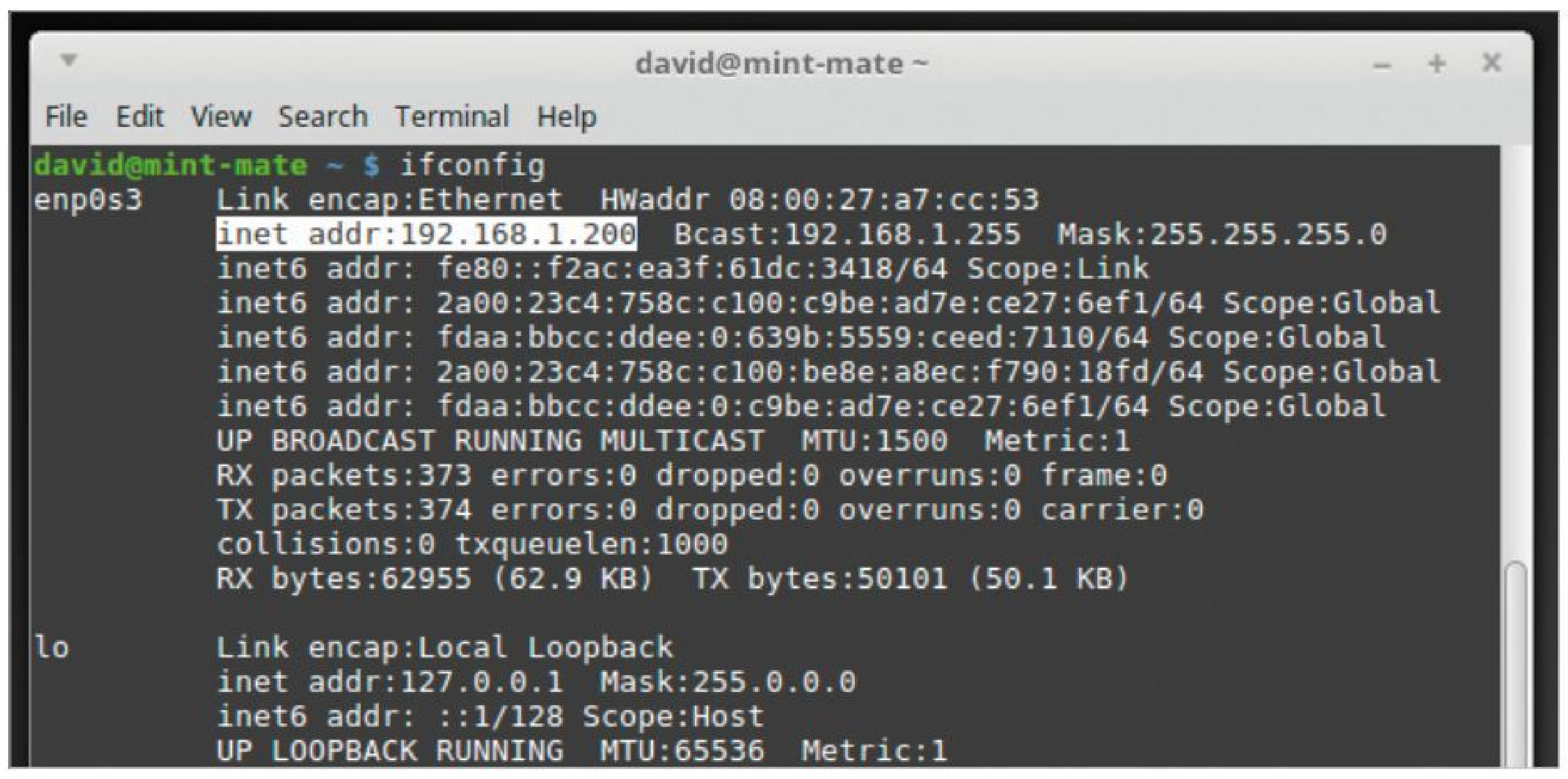
- TightVNC
  - TightVNC Server

TightVNC Server makes this computer available for remote

- Will be installed on local hard drive
- Entire feature will be installed on local hard drive
- Feature will be installed when required
- Entire feature will be unavailable

STEP 7

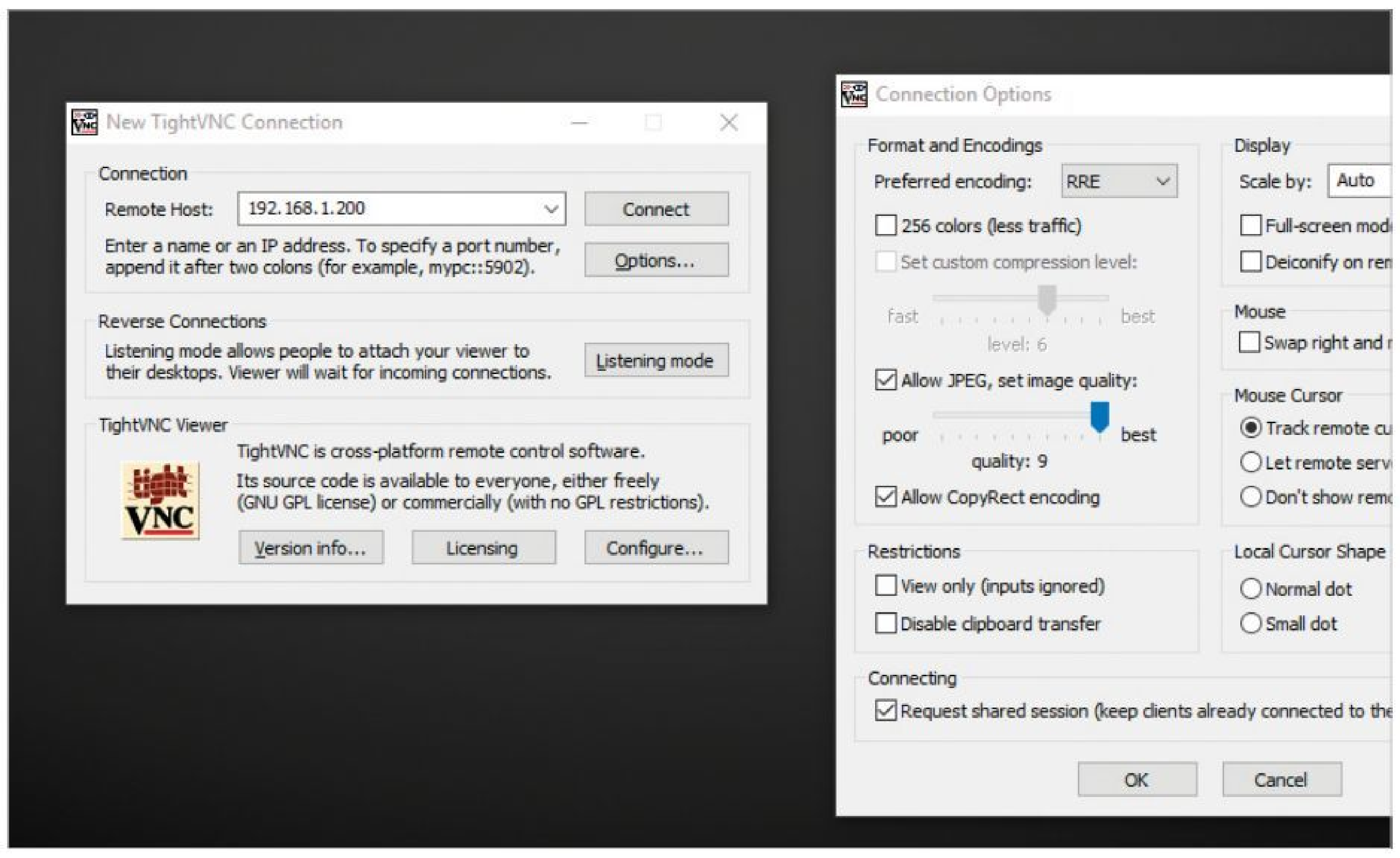
To connect to the Linux Mint PC, you need its IP Address. Open a Terminal and enter: `ifconfig`. The IP Address for Mint will be labelled as `inet addr:`, our example is 192.168.1.200, as you can see from the screenshot below. Remember this address as you'll use it in the next step.



```
david@mint-mate ~ $ ifconfig
enp0s3    Link encap:Ethernet  HWaddr 08:00:27:a7:cc:53
          inet addr:192.168.1.200  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::f2ac:ea3f:61dc:3418/64 Scope:Link
          inet6 addr: 2a00:23c4:758c:c100:c9be:ad7e:ce27:6ef1/64 Scope:Global
          inet6 addr: fdaa:bbcc:ddee:0:639b:5559:ceed:7110/64 Scope:Global
          inet6 addr: 2a00:23c4:758c:c100:be8e:a8ec:f790:18fd/64 Scope:Global
          inet6 addr: fdaa:bbcc:ddee:0:c9be:ad7e:ce27:6ef1/64 Scope:Global
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:373 errors:0 dropped:0 overruns:0 frame:0
          TX packets:374 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:62955 (62.9 KB)  TX bytes:50101 (50.1 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
```

STEP 8

Back to the Windows PC, launch the TightVNC viewer client, and in the Remote Host box enter the IP Address of the Linux Mint PC; using our example, that would be 192.168.1.200. For the moment, leave the Options button but for future reference in Options you can set the detail levels, quality, full screen and so on.



New TightVNC Connection

Connection

Remote Host: 192.168.1.200

Enter a name or an IP address. To specify a port number, append it after two colons (for example, mypc::5902).

Reverse Connections

Listening mode allows people to attach your viewer to their desktops. Viewer will wait for incoming connections.

TightVNC Viewer

TightVNC is cross-platform remote control software.

Its source code is available to everyone, either freely (GNU GPL license) or commercially (with no GPL restrictions).

Connection Options

Format and Encodings

Preferred encoding: RRE

☐ 256 colors (less traffic)

☐ Set custom compression level:

fast — best, level: 6

☑ Allow JPEG, set image quality:

poor — best, quality: 9

☑ Allow CopyRect encoding

Restrictions

☐ View only (inputs ignored)

☐ Disable clipboard transfer

Connecting

☑ Request shared session (keep clients already connected to the

Display

Scale by: Auto

☐ Full-screen mod

☐ Deiconify on rem

Mouse

☐ Swap right and

Mouse Cursor

● Track remote cu

○ Let remote serv

○ Don't show remo

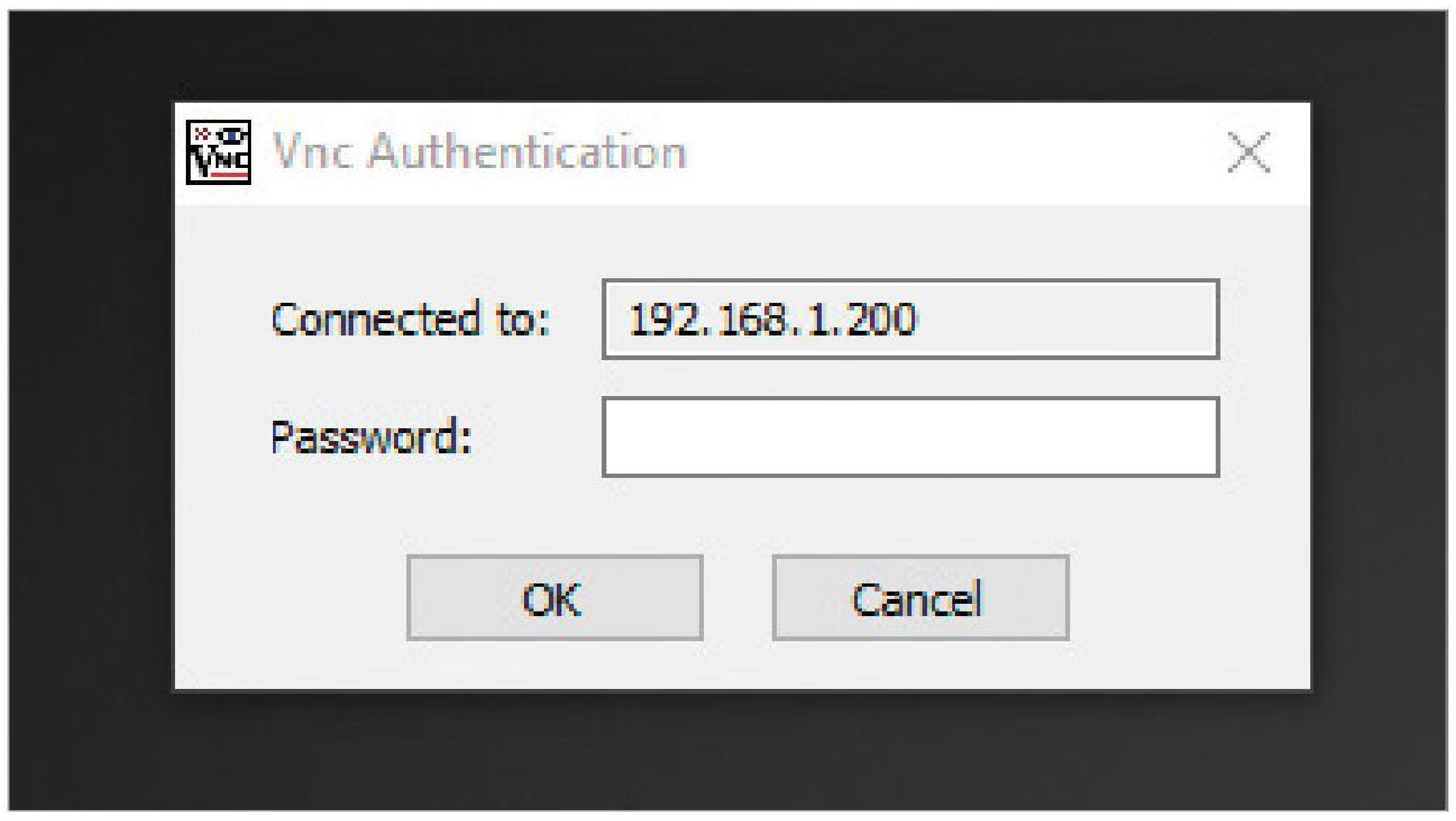
Local Cursor Shape

○ Normal dot

○ Small dot

STEP 9

In TightVNC Viewer, click the Connect button. You can now see that a VNC Authentication box appears, with the IP Address of the Linux Mint PC and a password box. Enter the password you created in the Mint Desktop Sharing section, Step 3 and click the OK button to start the connection.



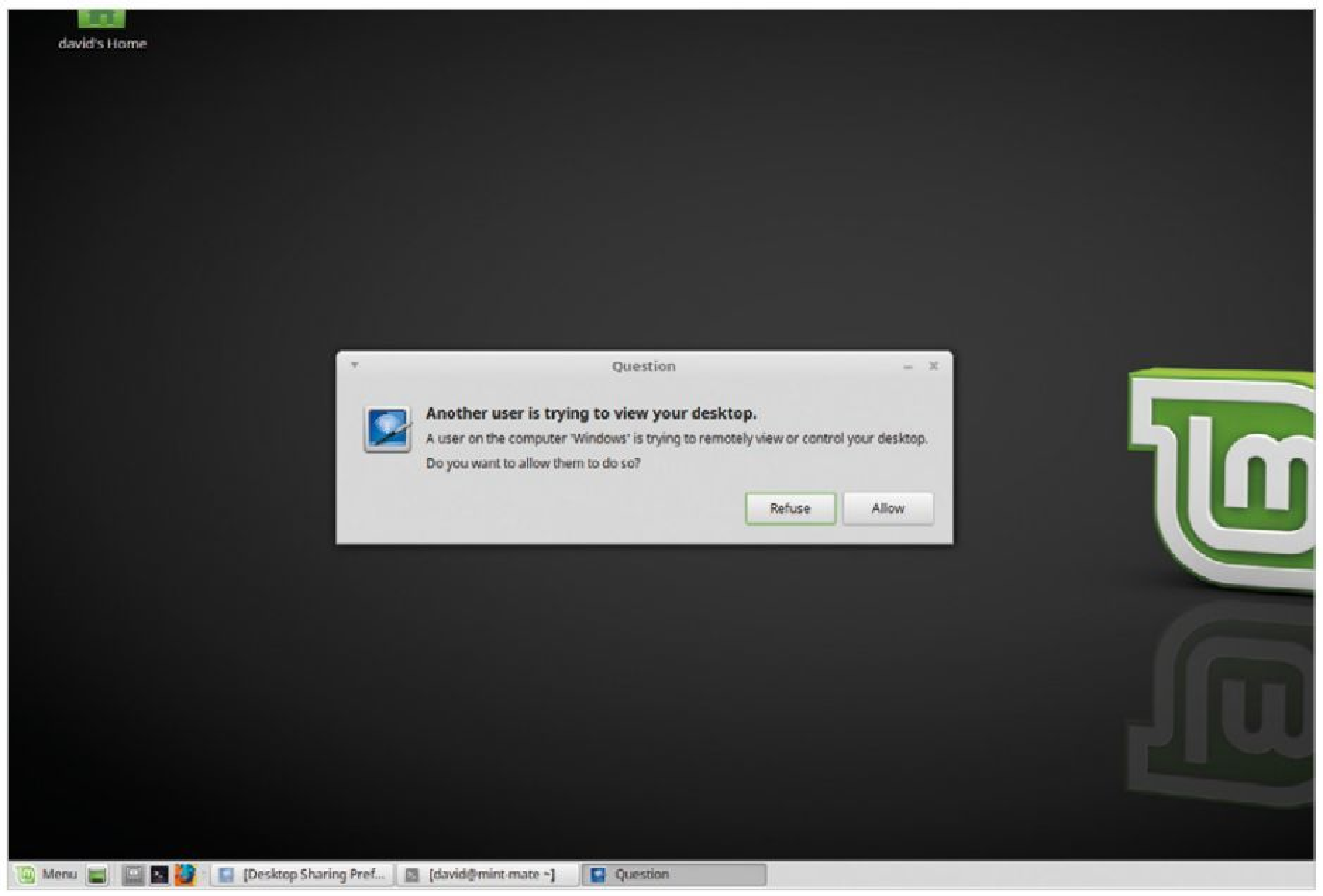
Vnc Authentication

Connected to: 192.168.1.200

Password:

STEP 10

On the Linux Mint PC, you can see a message stating 'Another user is trying to view your desktop', with Refuse and Allow buttons. Obviously, if you want to connect, click the Allow button and TightVNC will be updated with a view to the Linux Mint Desktop.



Question

Another user is trying to view your desktop.

A user on the computer 'Windows' is trying to remotely view or control your desktop.

Do you want to allow them to do so?

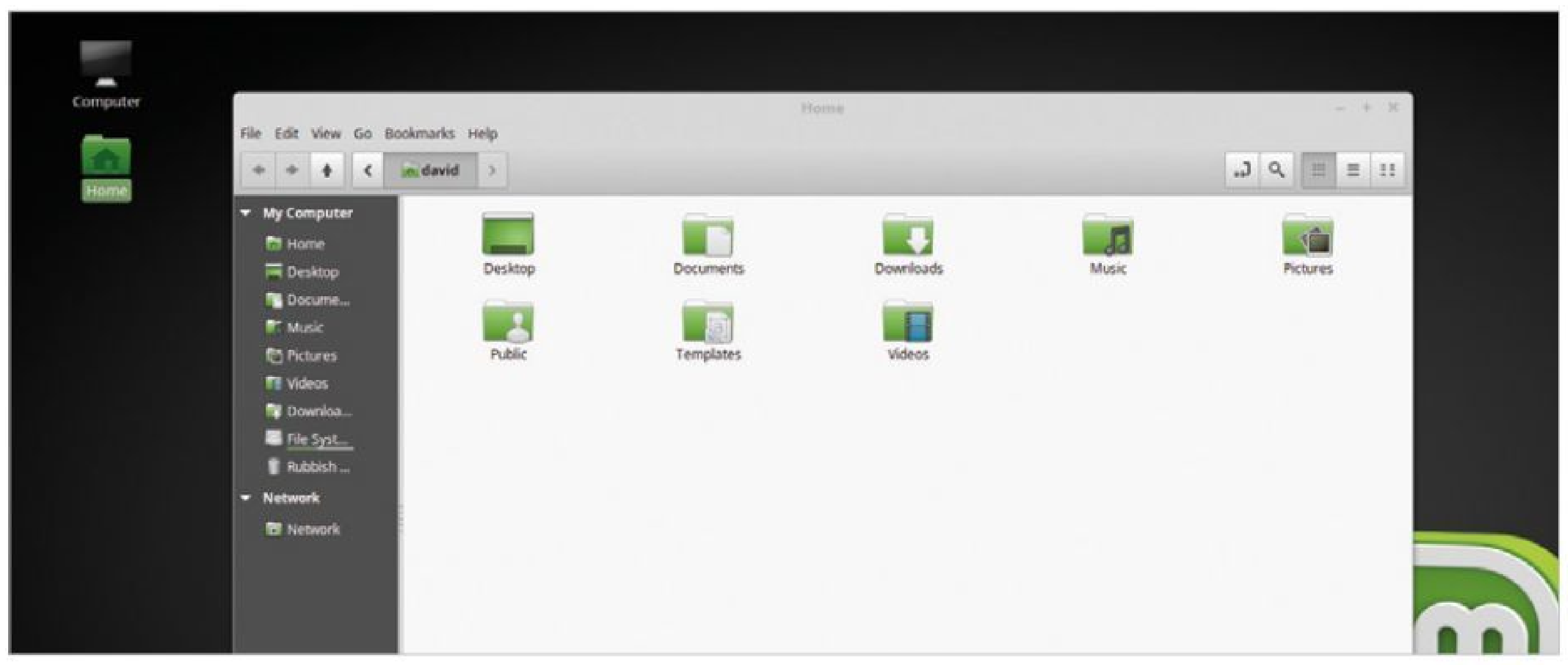
Backing Up Linux Mint

While Linux Mint is a remarkably stable and secure operating system, it's not 100% fool proof, but not many systems are. Therefore we need a good, working backup to help us out in case things go wrong.

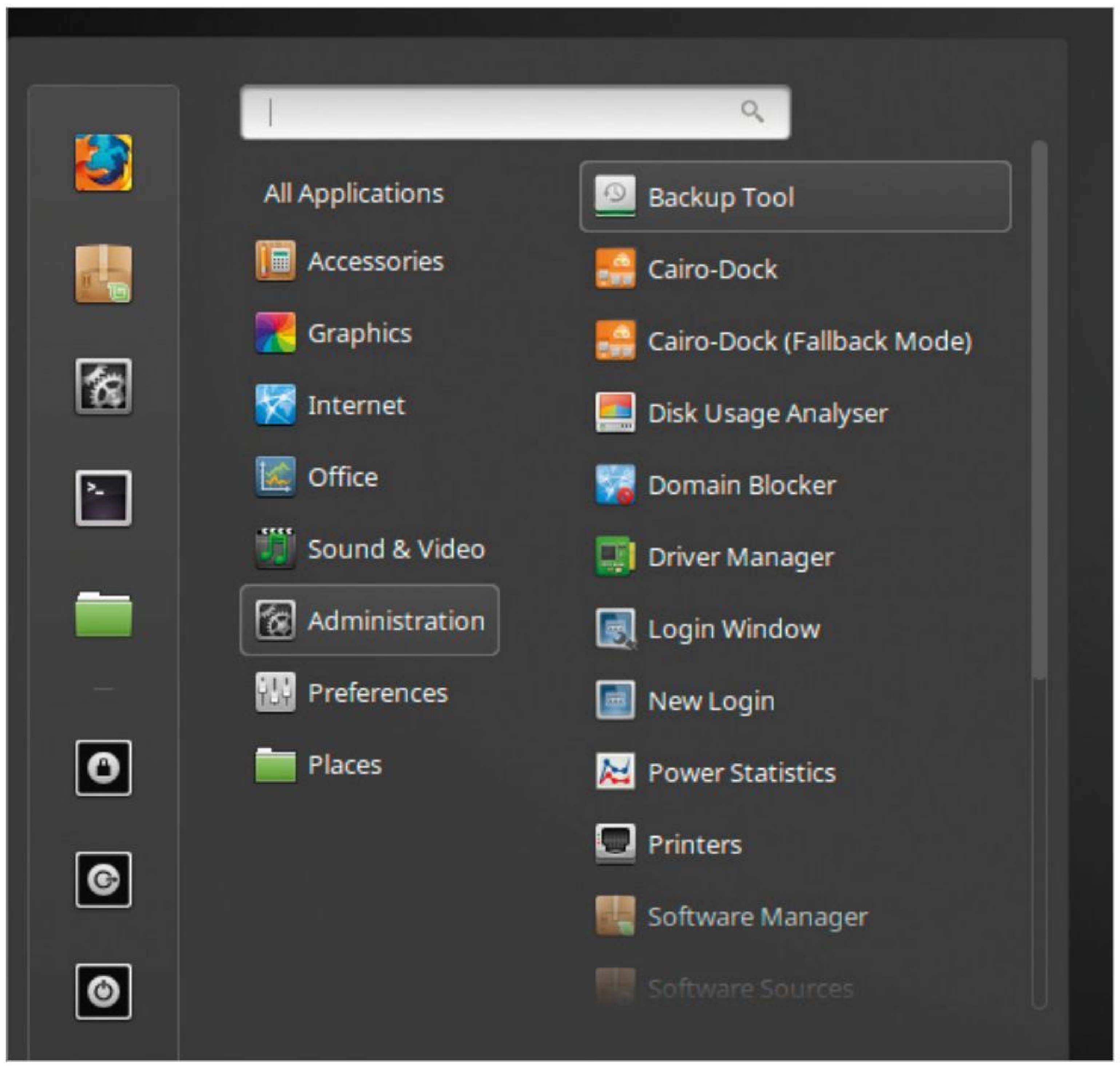
ALWAYS BACKUP

Backing up is the single most important computing task most users tend to never do! If you've ever lost your work or personal files during a crash, then you can certainly appreciate the need for a backup.

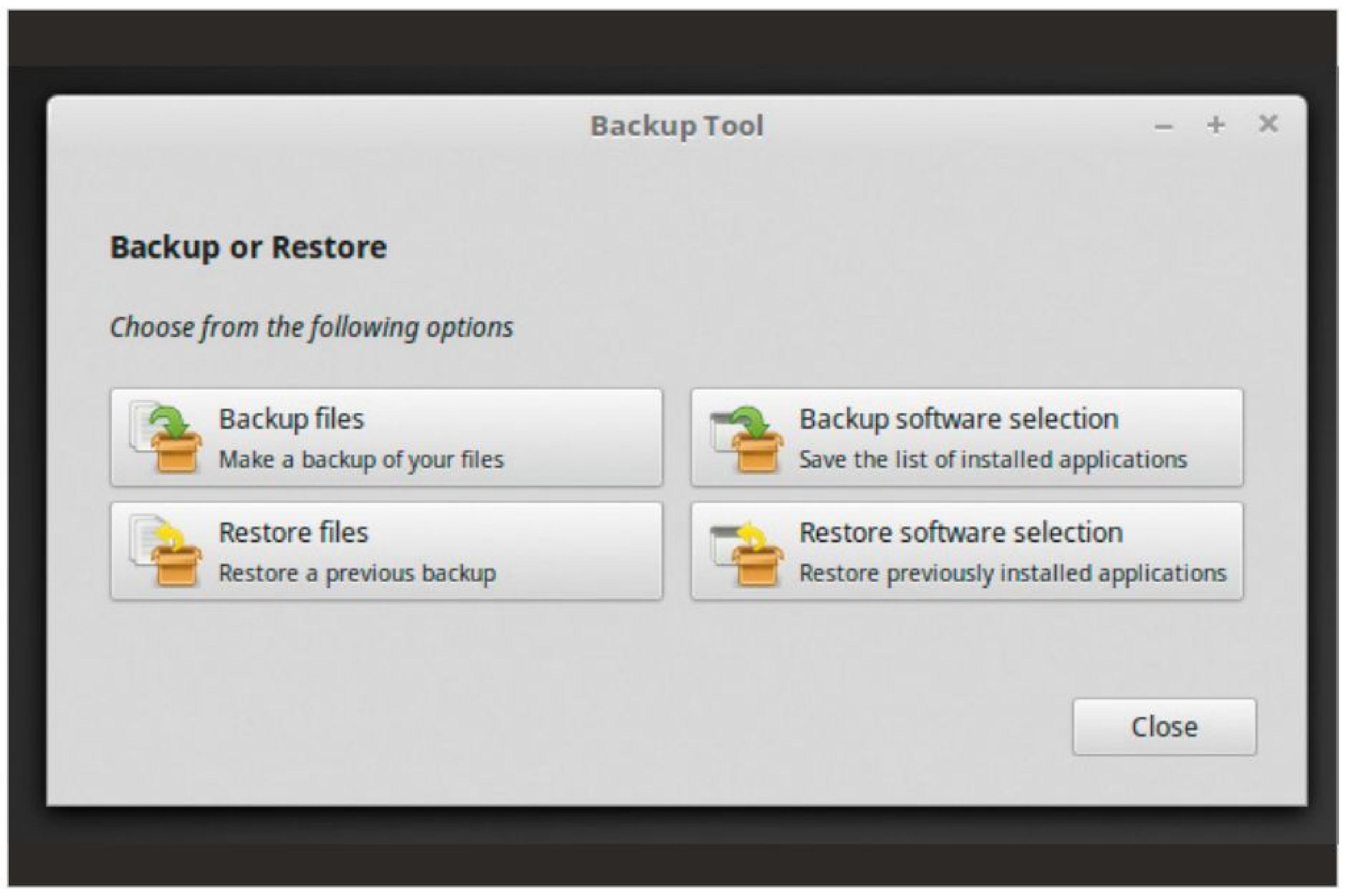
STEP 1 As Linux Mint is a quick to install and update the operating system, it al;so doesn't take long to get it back to the way it was prior to a devastating loss of data. That being the case, let's concentrate this backing up tutorial on your personal Home folder, where you're able to quickly restore it once you've reinstalled Mint.


Computer
Home
File Edit View Go Bookmarks Help
david
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish...
Network
Network
Desktop
Documents
Downloads
Music
Pictures
Public
Templates
Videos

STEP 2 We're using an 8GB USB flash drive to back up our data, which we've imaginatively named Backup; obviously you may need more capacity depending on what you have stored in your Home folder. First, let's insert the USB stick into the Mint PC, then click the Mint Menu and either search for backup or look to the Administration category for Backup Tool.


All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Backup Tool
Cairo-Dock
Cairo-Dock (Fallback Mode)
Disk Usage Analyser
Domain Blocker
Driver Manager
Login Window
New Login
Power Statistics
Printers
Software Manager
Software Sources

STEP 3 You need to enter your password before accessing the Backup Tool console window. Once it's launched, you can see four available options: Backup files, Backup software selection, Restore files and Restore software selection.

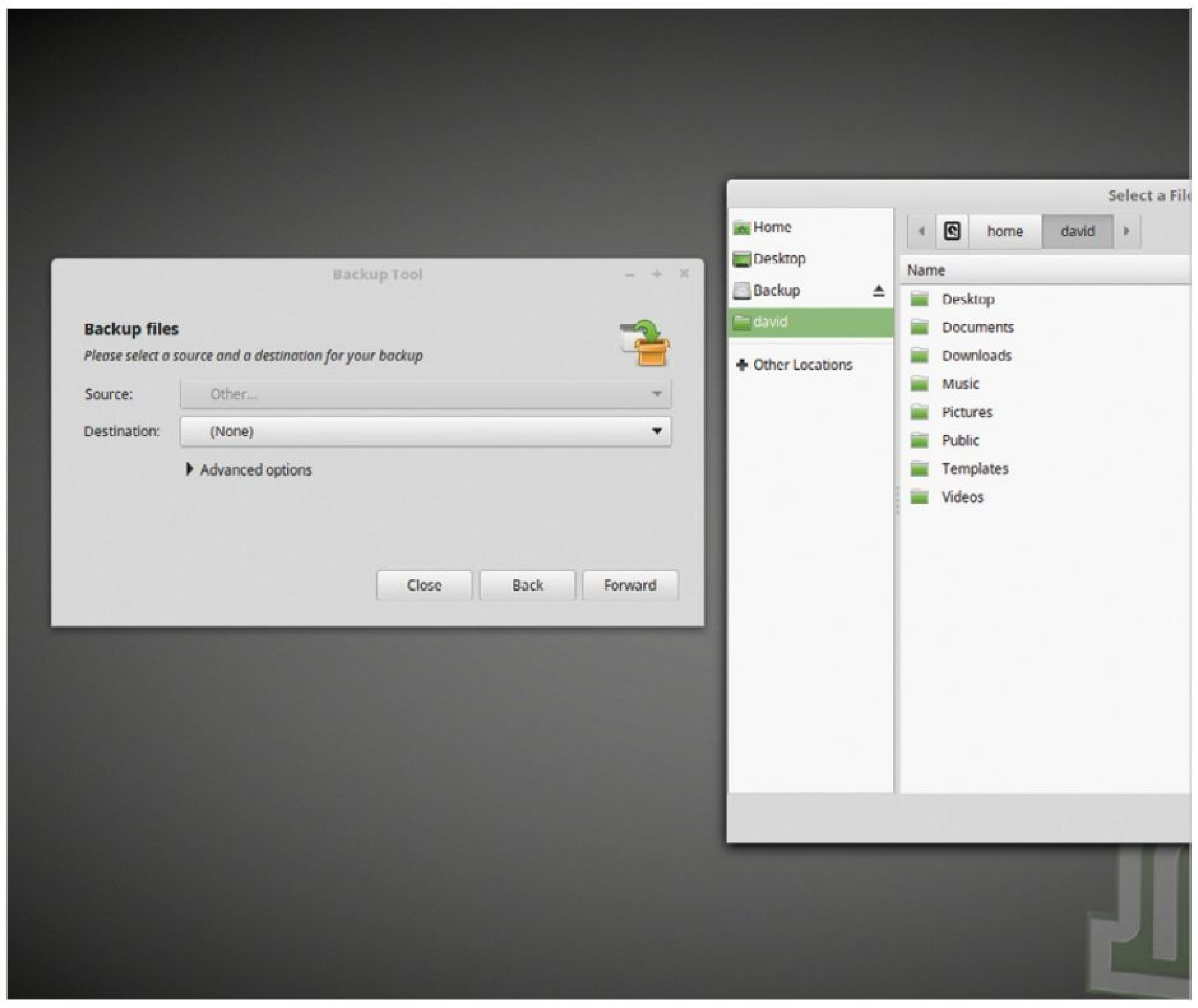

Backup Tool

Backup or Restore

Choose from the following options

Backup files
Make a backup of your files
Backup software selection
Save the list of installed applications
Restore files
Restore a previous backup
Restore software selection
Restore previously installed applications
Close

STEP 4 First click the Backup files option. This leads to another window, where you can enter the Source. Use the drop-down menu to choose Other > username, where username is your Mint username folder, and click Open. You can also opt for the Home folder, as seen here, in order to back up any other Mint user accounts.


Backup Tool

Backup files

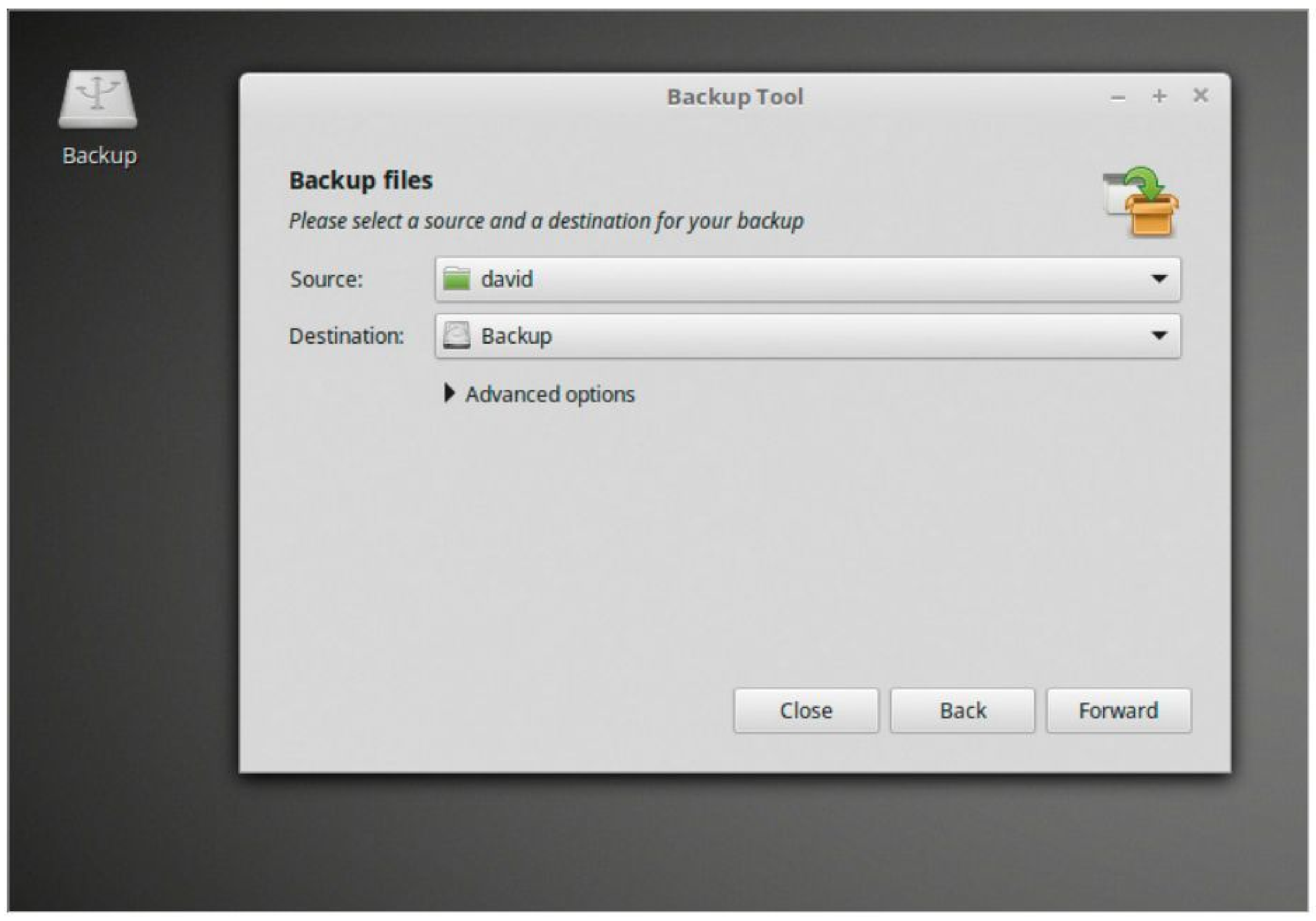
Please select a source and a destination for your backup

Source: Other...

Destination: (None)

Advanced options
Close
Back
Forward
Select a Fil
Home
Desktop
Backup
david
Other Locations
home
david
Name
Desktop
Documents
Downloads
Music
Pictures
Public
Templates
Videos

STEP 5 In the Destination drop-down menu, click the Backup drive. This is where the backup files will be copied to. When you have both the Source and Destination locations set, click the Forward button to continue.


Backup
Backup Tool
Advanced options
Close
Back
Forward

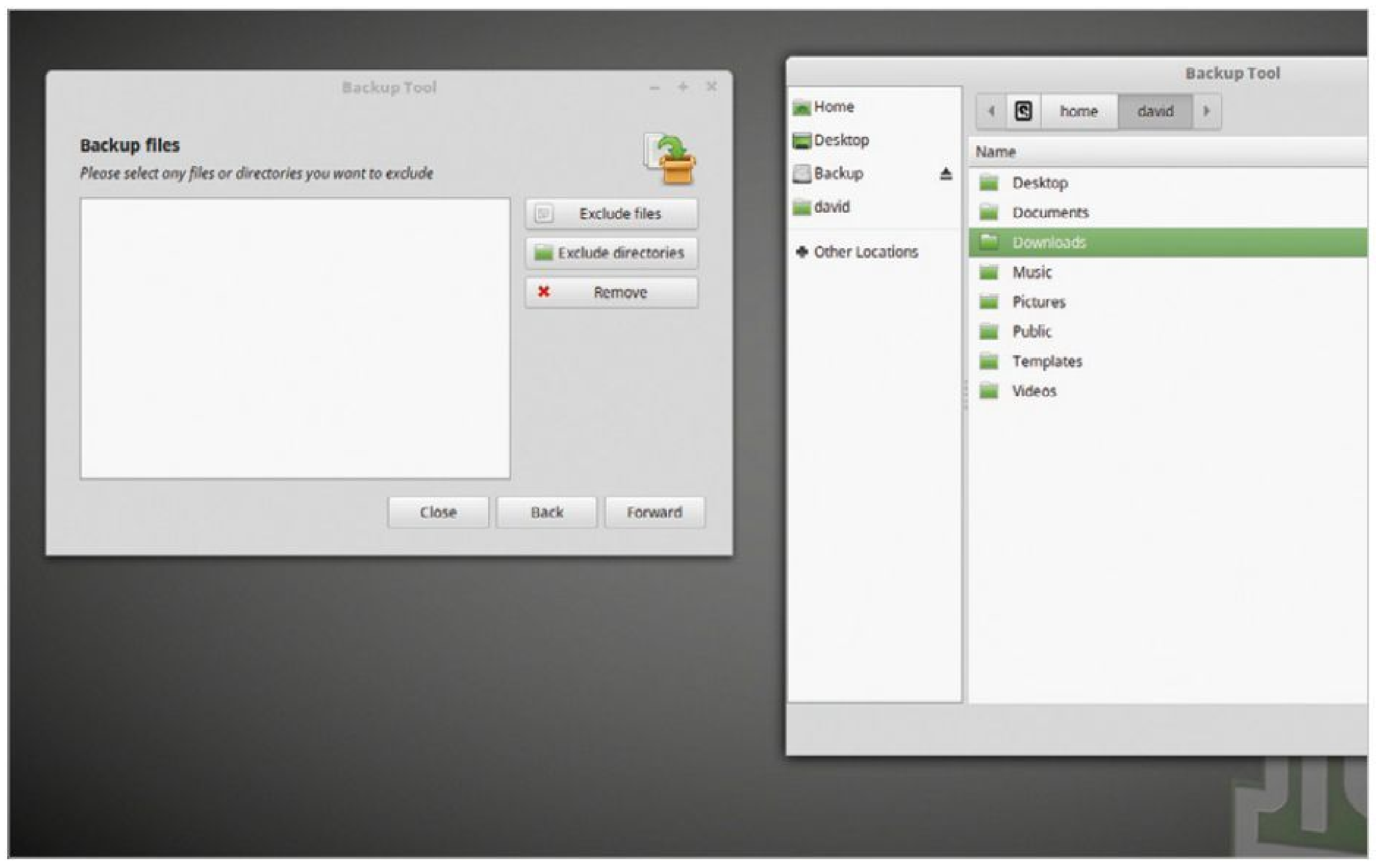
Backup files

Please select a source and a destination for your backup

Source: david

Destination: Backup

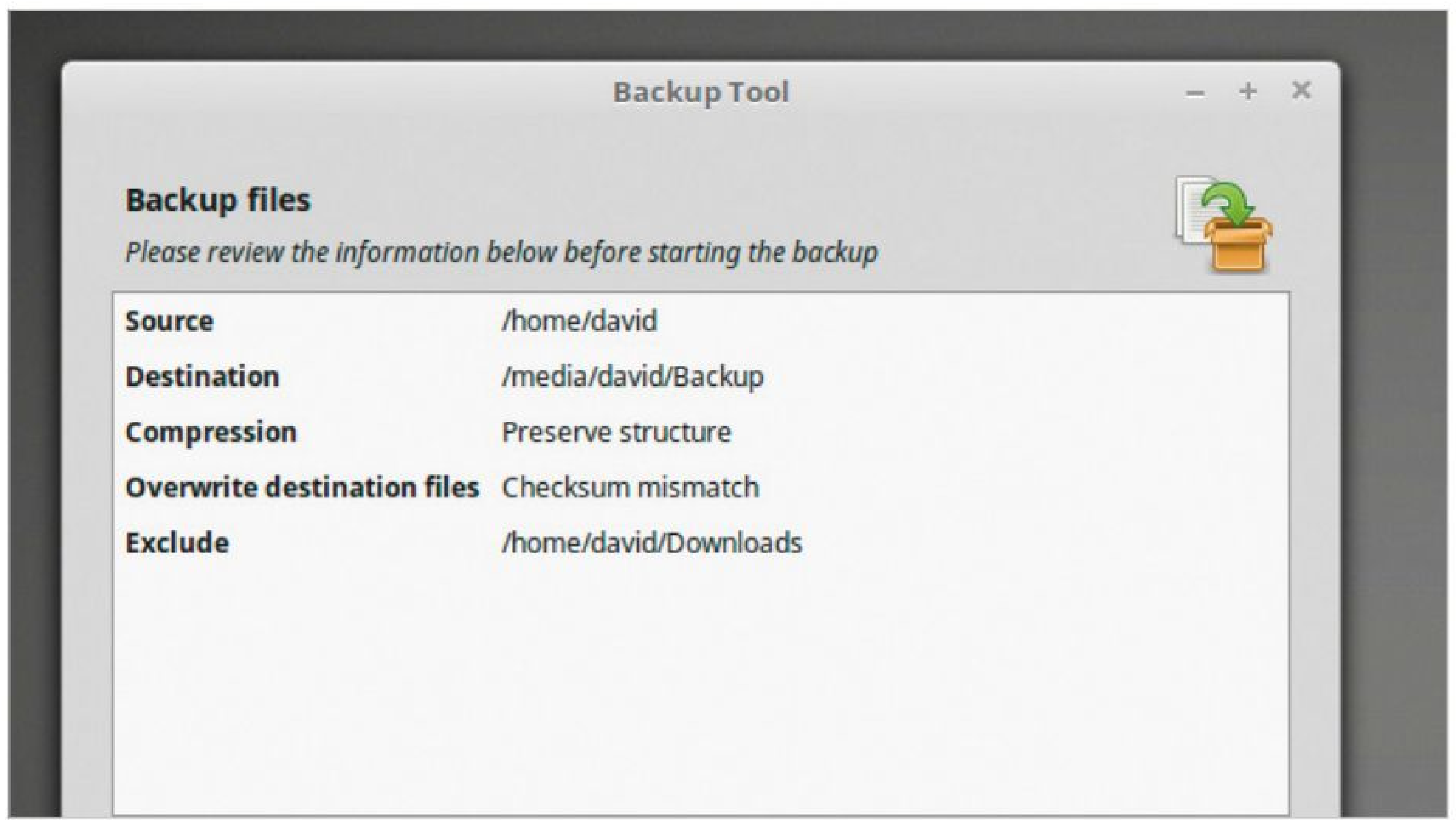
STEP 6 The next window gives you the option to exclude any files or folders from the backup. If you have several gigabytes of files, for example in your Downloads folder, that you don't want being backed up, then you can click the Exclude folder button and choose Downloads from the list. Click Forward to continue.


Backup Tool
Exclude files
Exclude directories
Remove
Close
Back
Forward
Backup Tool
Home
Desktop
Backup
david
Other Locations
home
david
Name
Desktop
Documents
Downloads
Music
Pictures
Public
Templates
Videos

Backup files

Please select any files or directories you want to exclude

STEP 7 This window displays a review of the events that will about to happen. In the case of our example, the source: /home/david, will be backed up to the destination: /media/david/Backup. There won't be any compression, any mismatched files will be overwritten and the Downloads folder will be excluded. If the review looks okay, click the Apply button to start.

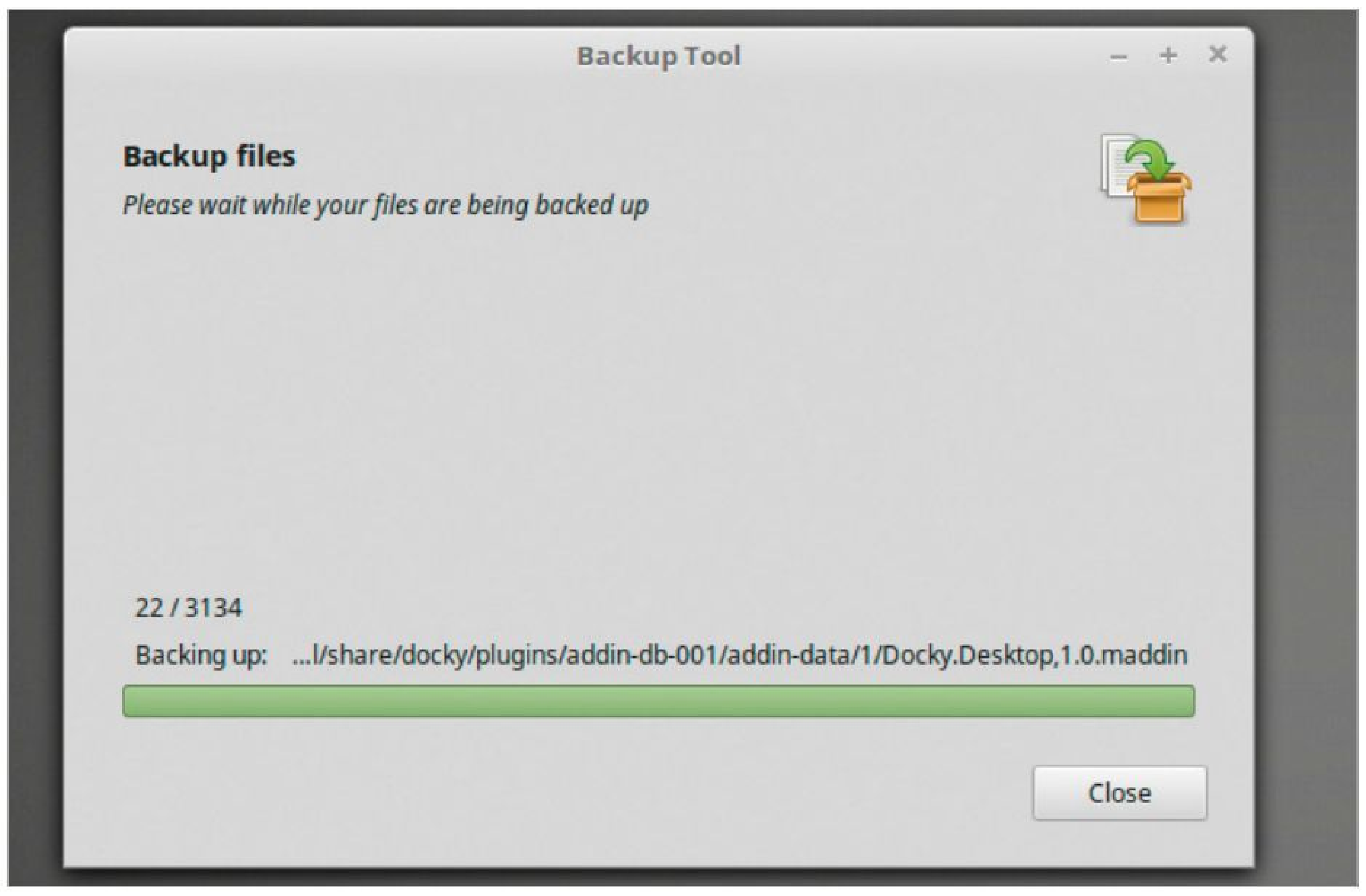

Backup Tool

Backup files

Please review the information below before starting the backup

Source	/home/david
Destination	/media/david/Backup
Compression	Preserve structure
Overwrite destination files	Checksum mismatch
Exclude	/home/david/Downloads

STEP 8 Depending on the number and size of the files you're backing up, the process could take from several minutes to several hours. The progress bar will inform you where it's at in the back up routine, and which files are currently being copied to the destination.


Backup Tool
Close

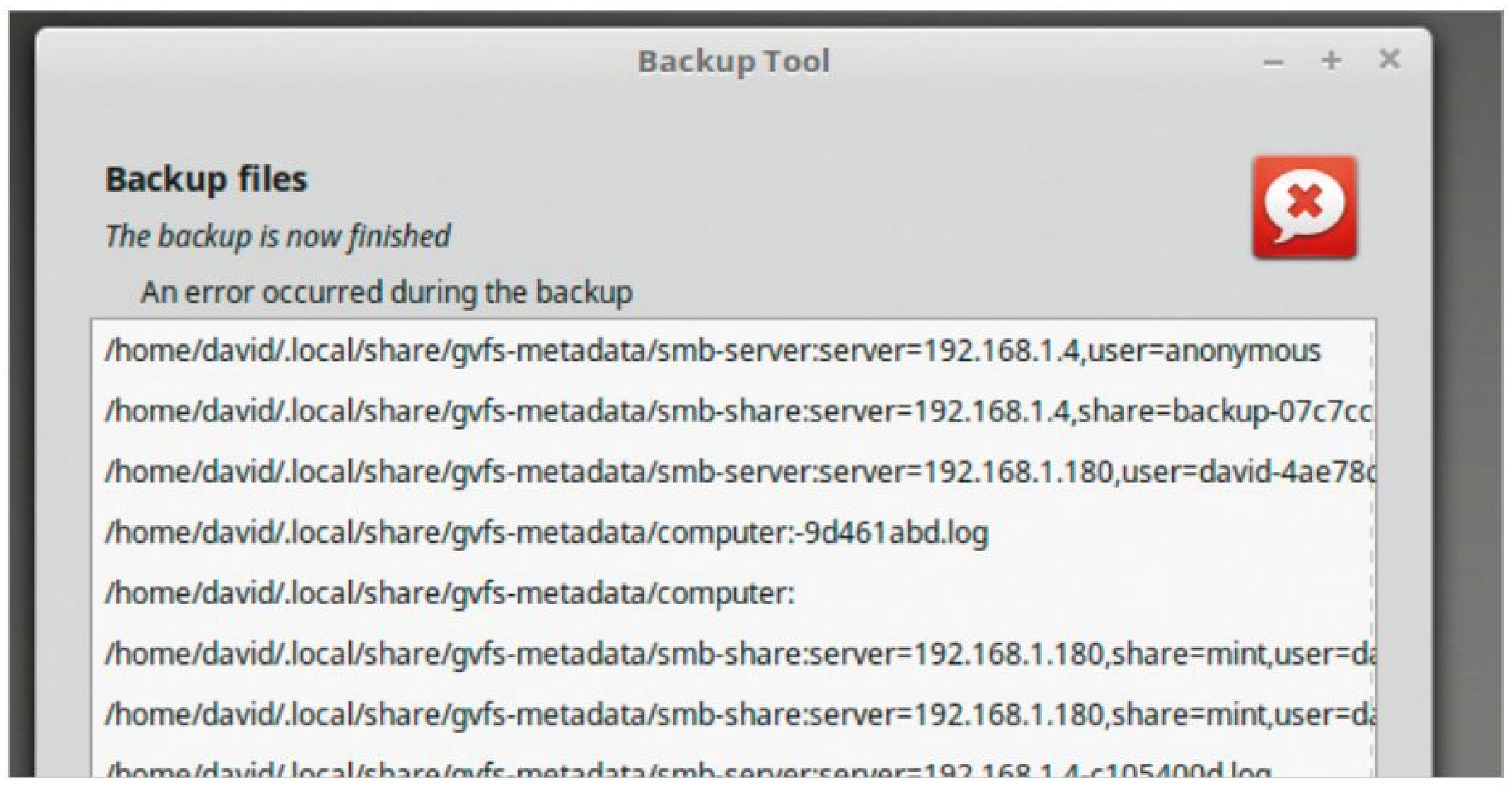
Backup files

Please wait while your files are being backed up

22 / 3134

Backing up: ...l/share/docky/plugins/addin-db-001/addin-data/1/Docky.Desktop,1.0.maddin

STEP 9 At the end of the backup any issues with accessing and copying files will be displayed in the Backup Tool window; if you're wondering, there are always some errors when you're backing up your entire user folder, as some files are in use and can't be copied over. It's nothing to worry about, as long as your personal data/work is backed up.


Backup Tool

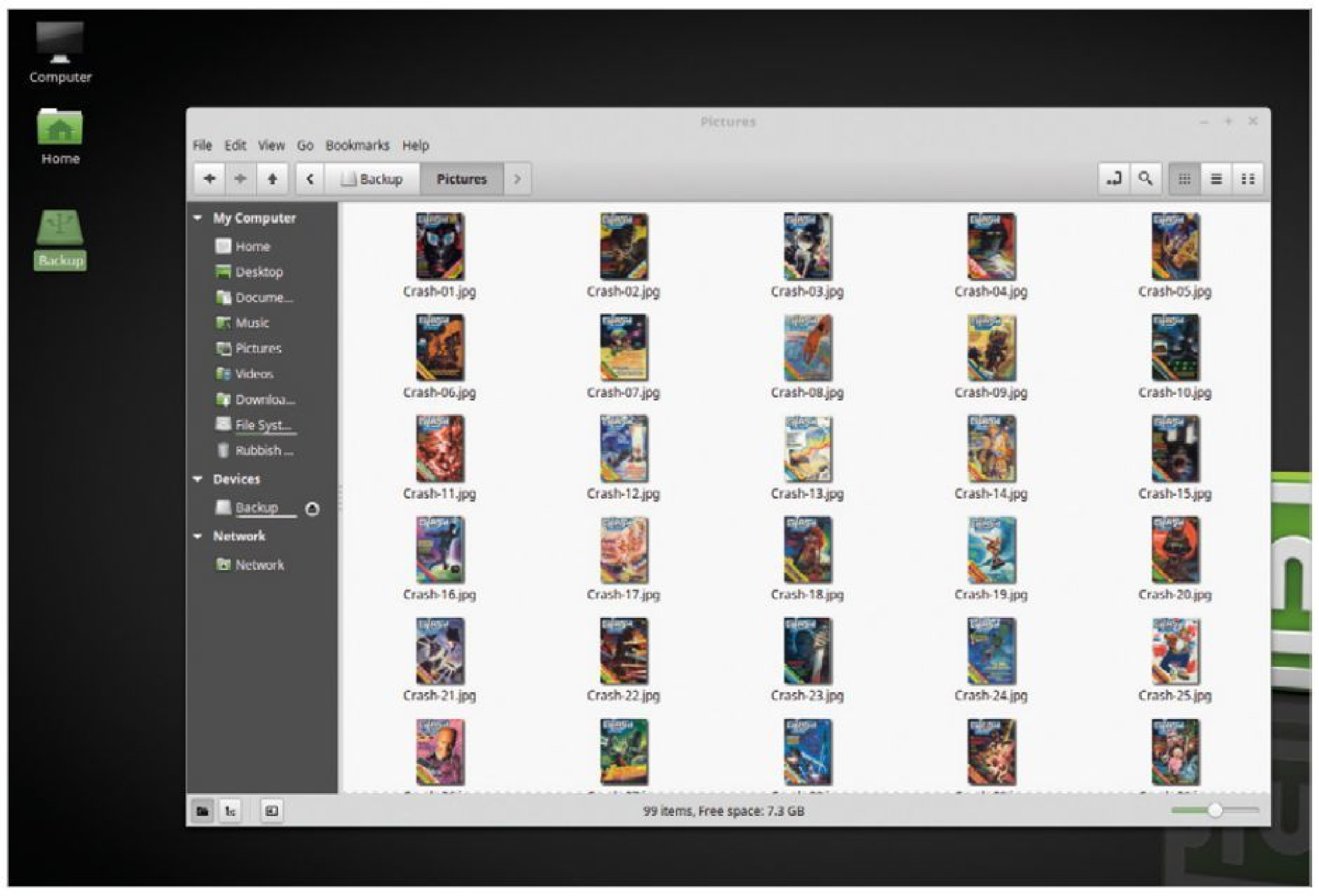
Backup files

The backup is now finished

An error occurred during the backup

```
/home/david/.local/share/gvfs-metadata/smb-server:server=192.168.1.4,user=anonymous
/home/david/.local/share/gvfs-metadata/smb-share:server=192.168.1.4,share=backup-07c7cc
/home/david/.local/share/gvfs-metadata/smb-server:server=192.168.1.180,user=david-4ae78c
/home/david/.local/share/gvfs-metadata/computer:-9d461abd.log
/home/david/.local/share/gvfs-metadata/computer:
/home/david/.local/share/gvfs-metadata/smb-share:server=192.168.1.180,share=mint,user=da
/home/david/.local/share/gvfs-metadata/smb-share:server=192.168.1.180,share=mint,user=da
/home/david/.local/share/gvfs-metadata/smb-server:server=192.168.1.4-c105400d.log
```

STEP 10 If your actual work files are backed up, without any errors, click the Close button. You can double-check the backup by opening the contents of the destination, the USB Flash Drive in this case, to see if everything is backed up accordingly. If all went well, then store the device in a safe place.


Computer
Home
Backup
Pictures
File Edit View Go Bookmarks Help
Backup
Pictures
My Computer
Home
Desktop
Documents
Music
Pictures
Videos
Downloads
File System
Rubbish
Devices
Backup
Network
Network
Crash-01.jpg
Crash-02.jpg
Crash-03.jpg
Crash-04.jpg
Crash-05.jpg
Crash-06.jpg
Crash-07.jpg
Crash-08.jpg
Crash-09.jpg
Crash-10.jpg
Crash-11.jpg
Crash-12.jpg
Crash-13.jpg
Crash-14.jpg
Crash-15.jpg
Crash-16.jpg
Crash-17.jpg
Crash-18.jpg
Crash-19.jpg
Crash-20.jpg
Crash-21.jpg
Crash-22.jpg
Crash-23.jpg
Crash-24.jpg
Crash-25.jpg
99 items, Free space: 7.3 GB

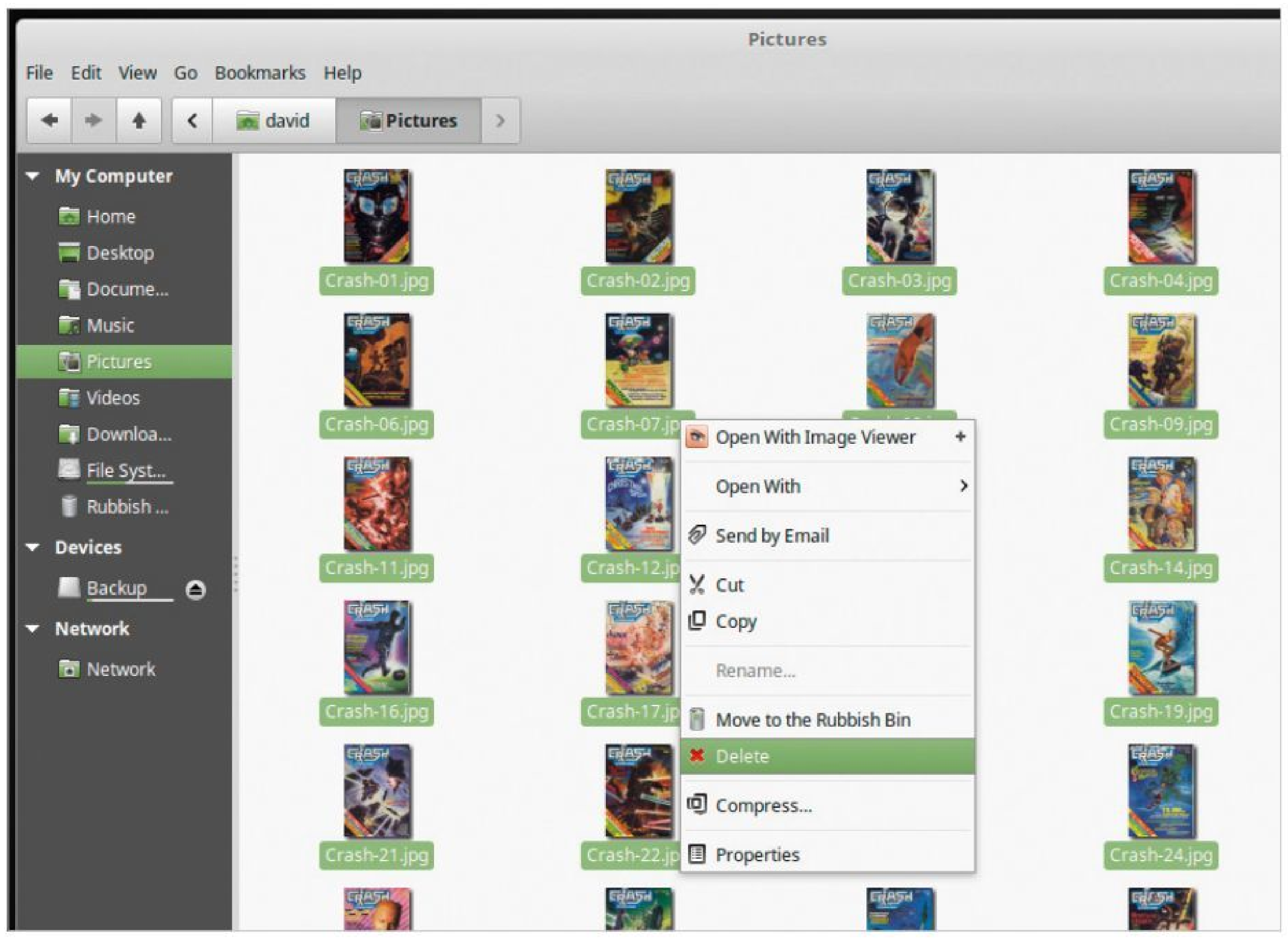
Restoring from Backup

Having a good backup is important but if you're unable to access the files to restore them to their original locations it's a bit pointless. Therefore, you need to test the backup by restoring files and folders.

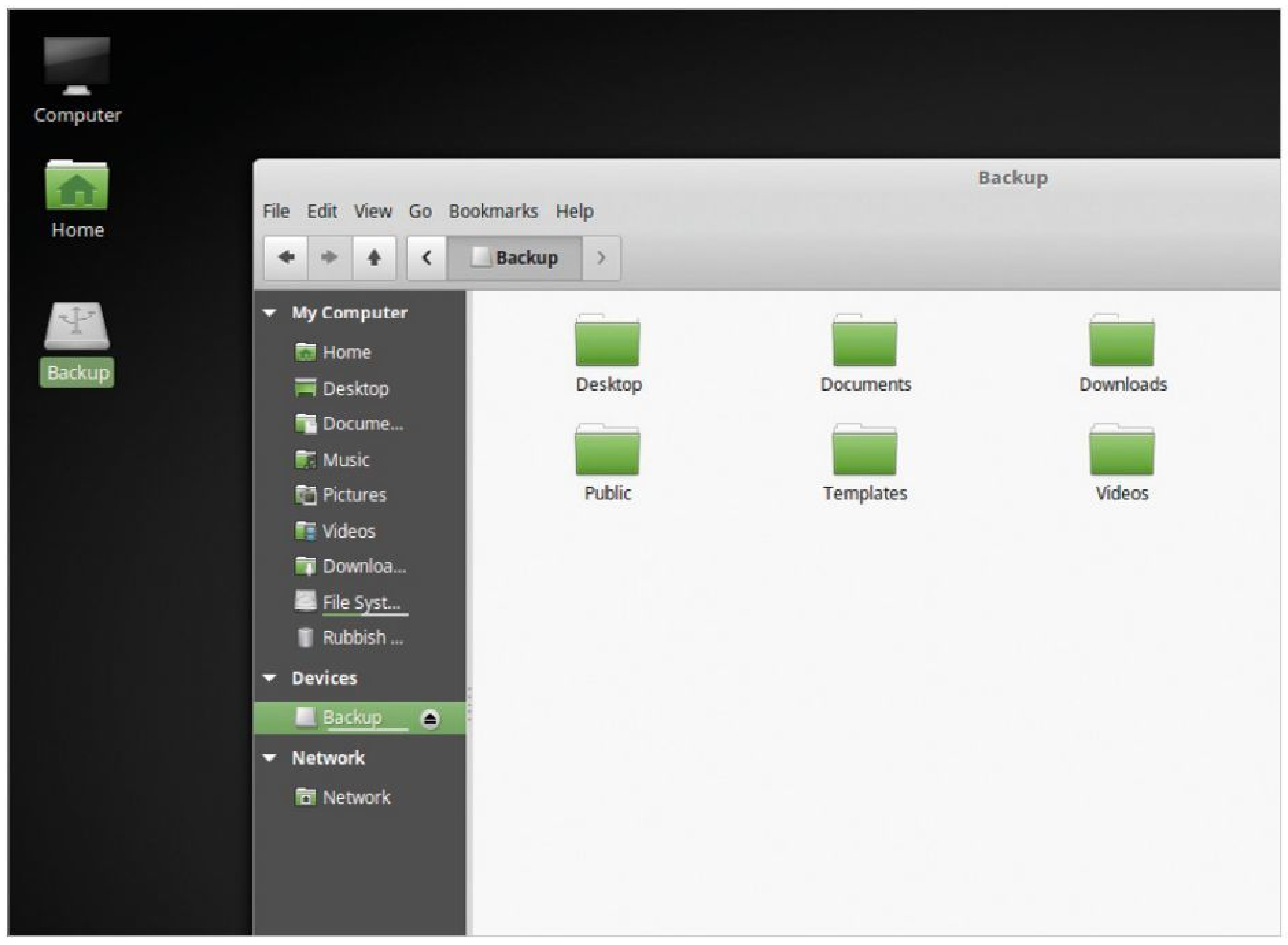
RESTORING YOUR FILES

For this example let's use the files we backed up in the previous pages. That way, we can test that our backup routine did the trick, and will work should we ever need it to.

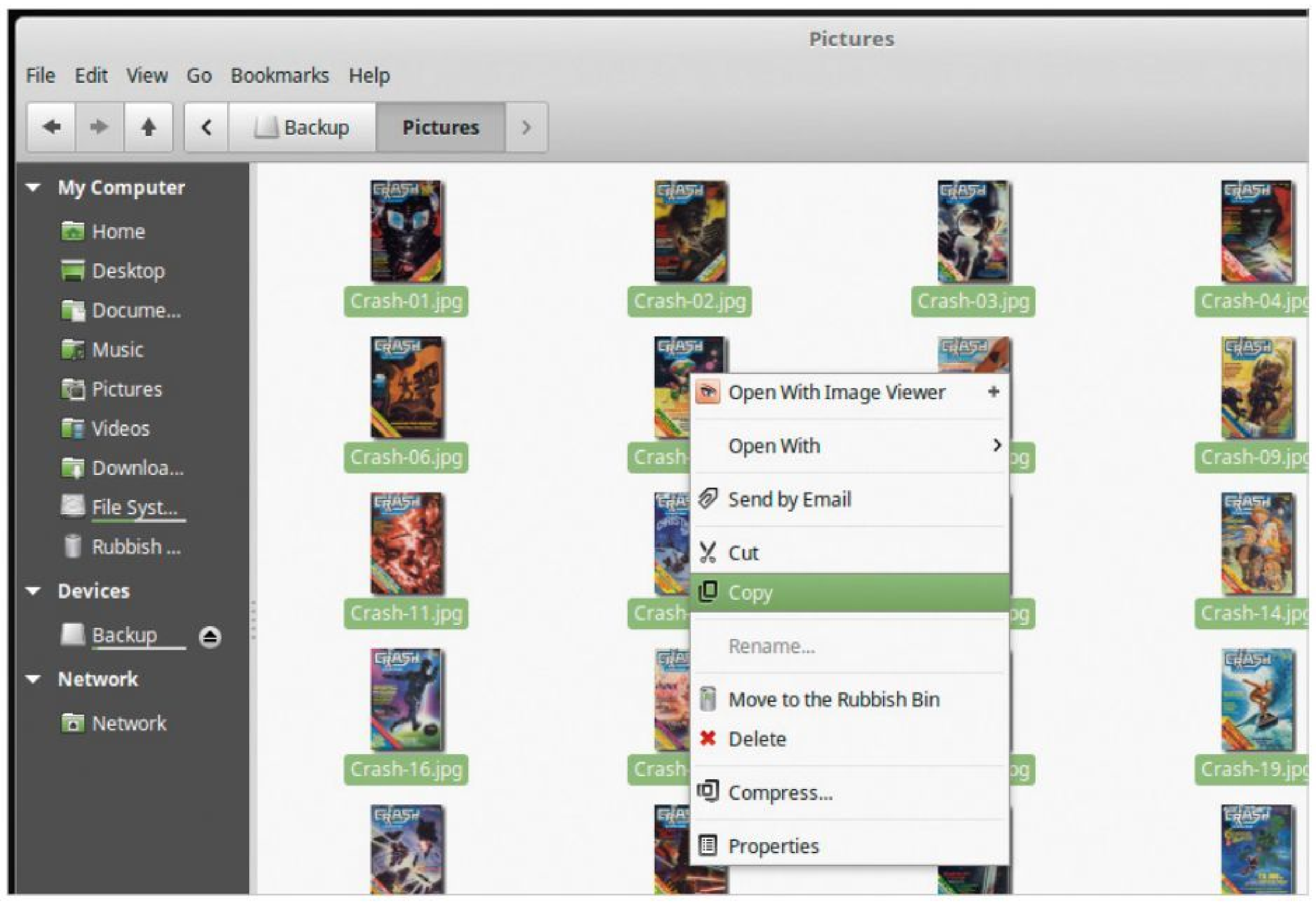
STEP 1 There are two ways in which you can restore your files from a backup: directly or via the Backup Tool. Use your Pictures folder in the Home area as a test. You did have 98 pictures in there when you performed the backup, now you can delete the contents of /Pictures.


Pictures
File Edit View Go Bookmarks Help
david
Pictures
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Devices
Backup
Network
Network
Crash-01.jpg
Crash-02.jpg
Crash-03.jpg
Crash-04.jpg
Crash-06.jpg
Crash-09.jpg
Crash-11.jpg
Crash-14.jpg
Crash-16.jpg
Crash-19.jpg
Crash-21.jpg
Crash-24.jpg
Open With Image Viewer
Open With
Send by Email
Cut
Copy
Rename...
Move to the Rubbish Bin
Delete
Compress...
Properties

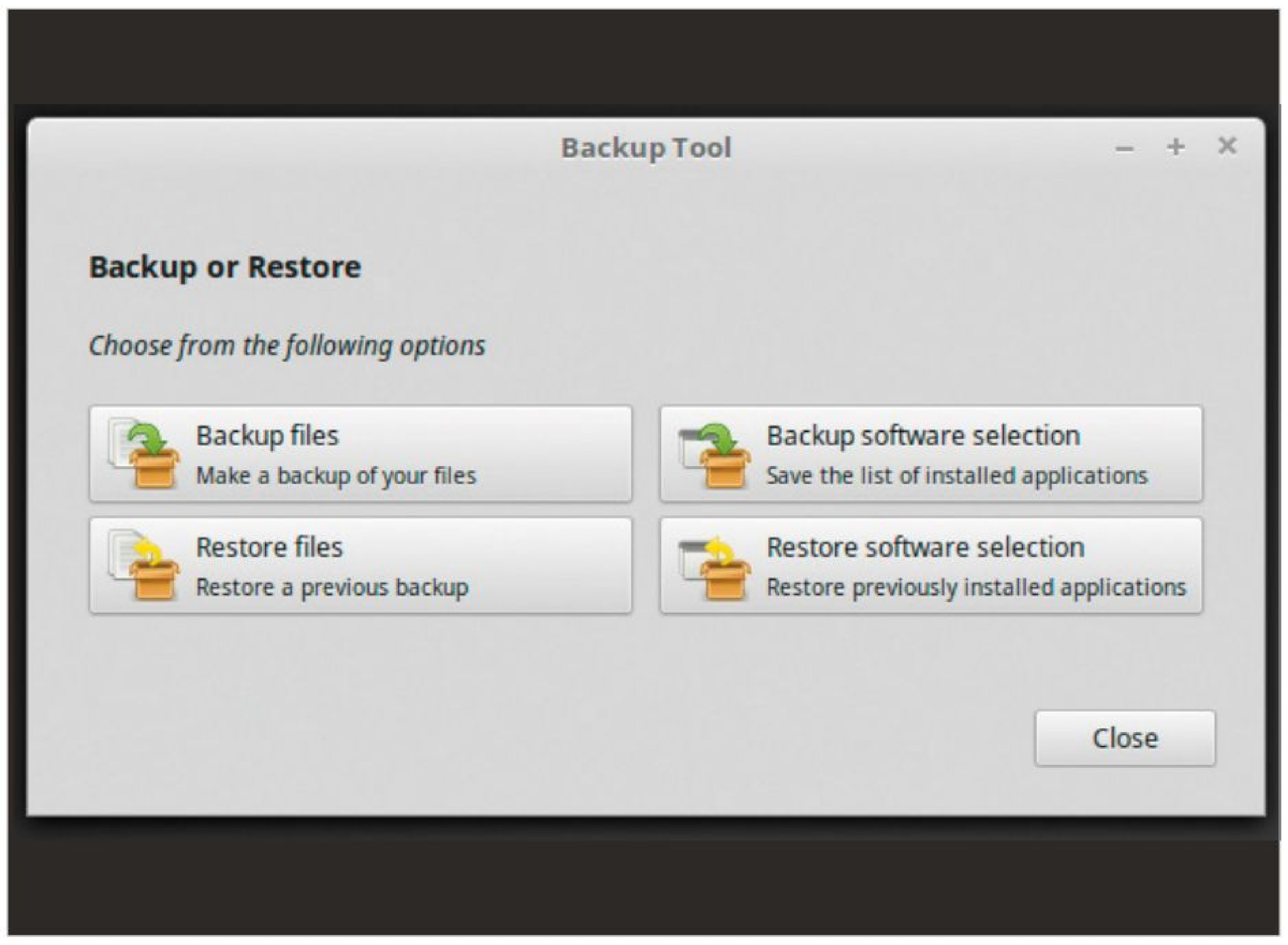
STEP 2 You've deleted the images in /Pictures, not sent them to the Rubbish Bin, so essentially they're gone for good. Using the direct method of restoring the images, open up the destination drive, or area. In our backup this was an 8GB USB Flash Drive with the label, Backup.


Computer
Home
Backup
Backup
File Edit View Go Bookmarks Help
Backup
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Devices
Backup
Network
Network
Desktop
Documents
Downloads
Public
Templates
Videos

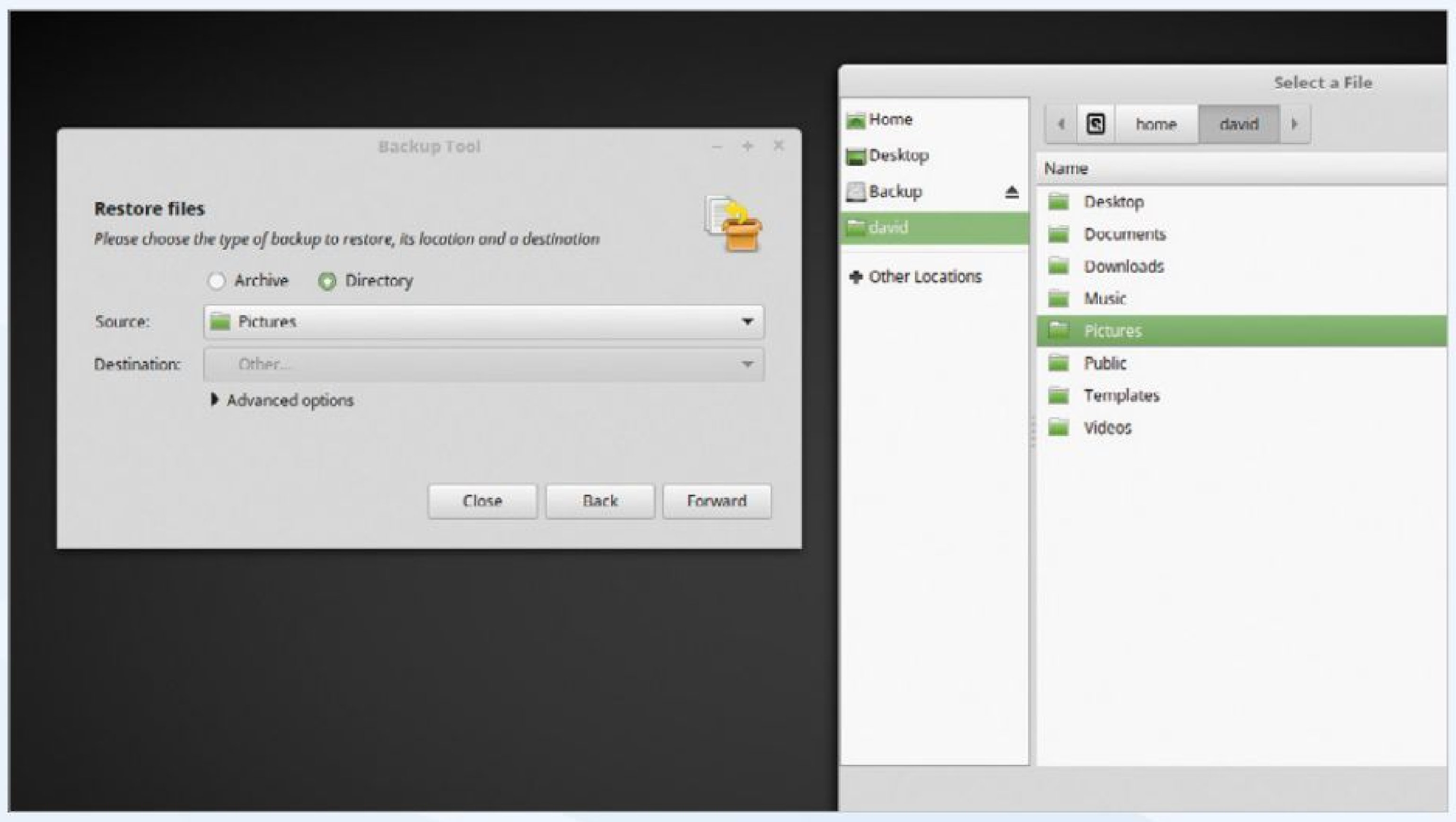
STEP 3 The backup displays the entire contents of the Mint username folders: Desktop, Downloads, documents, Music and of course, Pictures. You can double-click the Pictures folder in the backup location: press Ctrl+A to select all, right-click and choose Copy. Then in the Home folder, open Pictures, right-click and choose Paste. After a few moments the images will be copied over.


Pictures
File Edit View Go Bookmarks Help
Backup
Pictures
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Devices
Backup
Network
Network
Crash-01.jpg
Crash-02.jpg
Crash-03.jpg
Crash-04.jpg
Crash-06.jpg
Crash-09.jpg
Crash-11.jpg
Crash-14.jpg
Crash-16.jpg
Crash-19.jpg
Open With Image Viewer
Open With
Send by Email
Cut
Copy
Rename...
Move to the Rubbish Bin
Delete
Compress...
Properties

STEP 4 This is the easiest approach and allows you to choose what to restore at a brick-level, in other words from a single file upwards. If you need to restore a lot of data though, the direct method isn't so effective. Open the Backup Tool, via the Mint Menu, once more and enter your password.


Backup Tool
Backup or Restore
Choose from the following options
Backup files
Make a backup of your files
Backup software selection
Save the list of installed applications
Restore files
Restore a previous backup
Restore software selection
Restore previously installed applications
Close

STEP 5 From the available options, this time select Restore files. In the Restore Files console window, choose the Directory radio button. As the Source, choose the backup location (we're using the Backup Drive's Pictures folder here) and in the Destination, choose the Mint username Pictures folder.


Backup Tool

Restore files

Please choose the type of backup to restore, its location and a destination

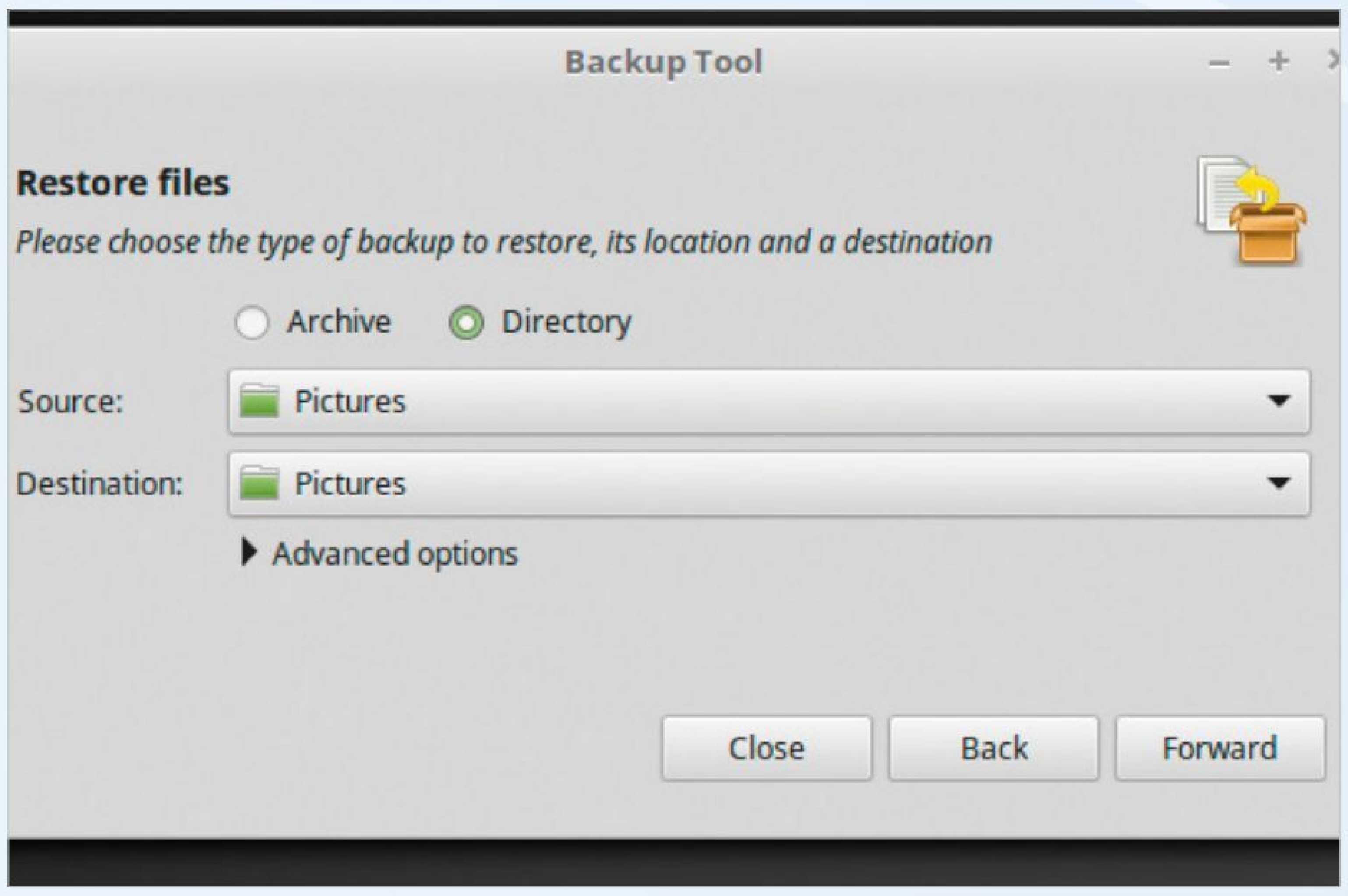
○ Archive ● Directory

Source: Pictures

Destination: Other...

Advanced options
Close
Back
Forward
Select a File
Home
Desktop
Backup
david
Other Locations
home
david
Name
Desktop
Documents
Downloads
Music
Pictures
Public
Templates
Videos

STEP 6 Once you've selected your source and destination folders, remember they are the reverse of when you backed up, i.e. from the backup media to the folder in the Linux Mint username area, click the Forward button.


Backup Tool

Restore files

Please choose the type of backup to restore, its location and a destination

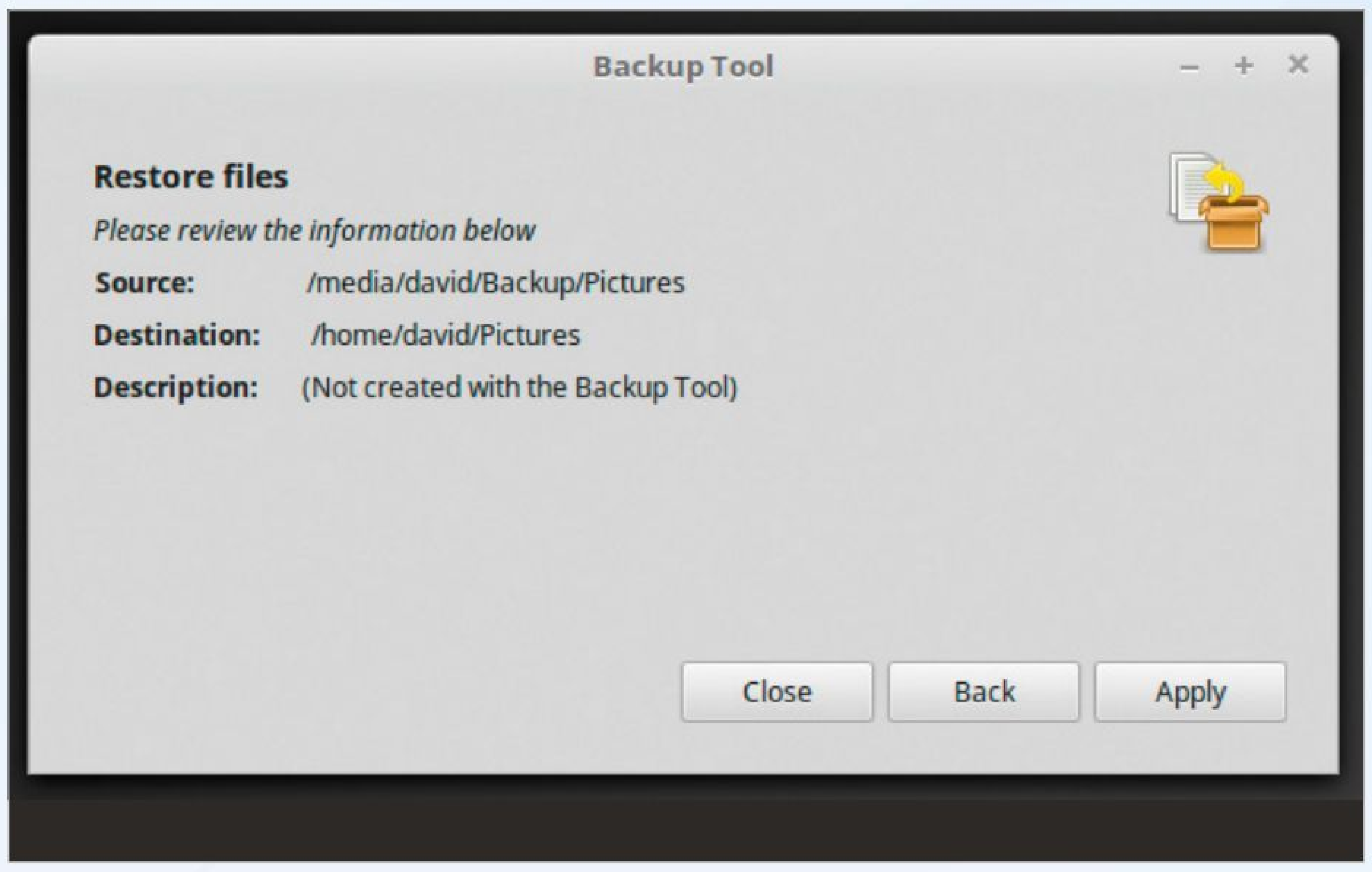
○ Archive ● Directory

Source: Pictures

Destination: Pictures

Advanced options
Close
Back
Forward

STEP 7 You are now at the review display window. Make sure that the source and destination locations are correct and that any other details are correct. Don't worry about the 'Not created with the Backup Tool' notice, although the backup was created by it, it's assuming it was a straight file copy, the easiest form of a backup.


Backup Tool

Restore files

Please review the information below

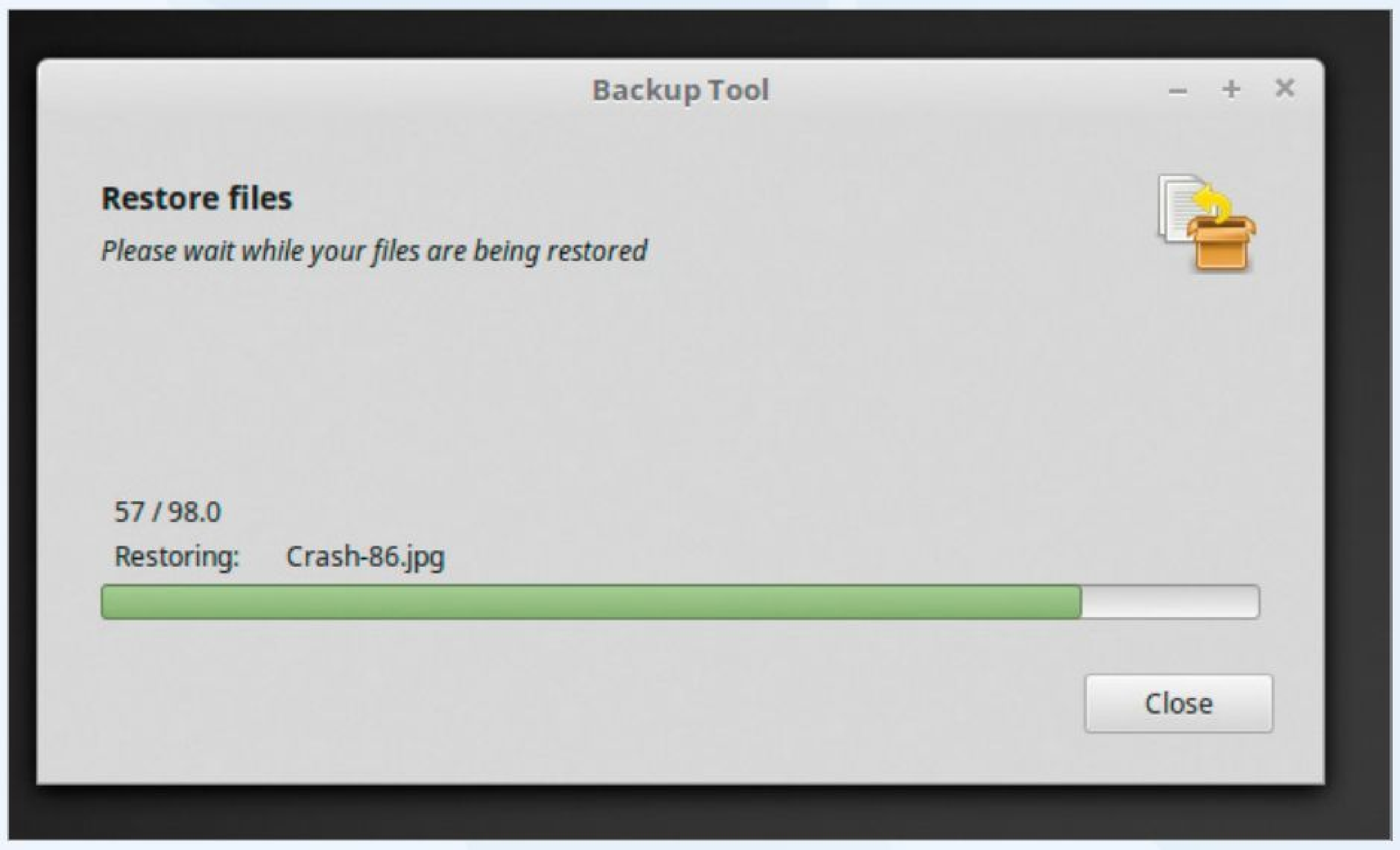
Source: /media/david/Backup/Pictures

Destination: /home/david/Pictures

Description: (Not created with the Backup Tool)

Close
Back
Apply

STEP 8 If everything looks okay, click the Apply button to commence the restoring of the selected files or folders. Again, as with the backup routine, depending on the size and how many files are being restored it could take some time.


Backup Tool

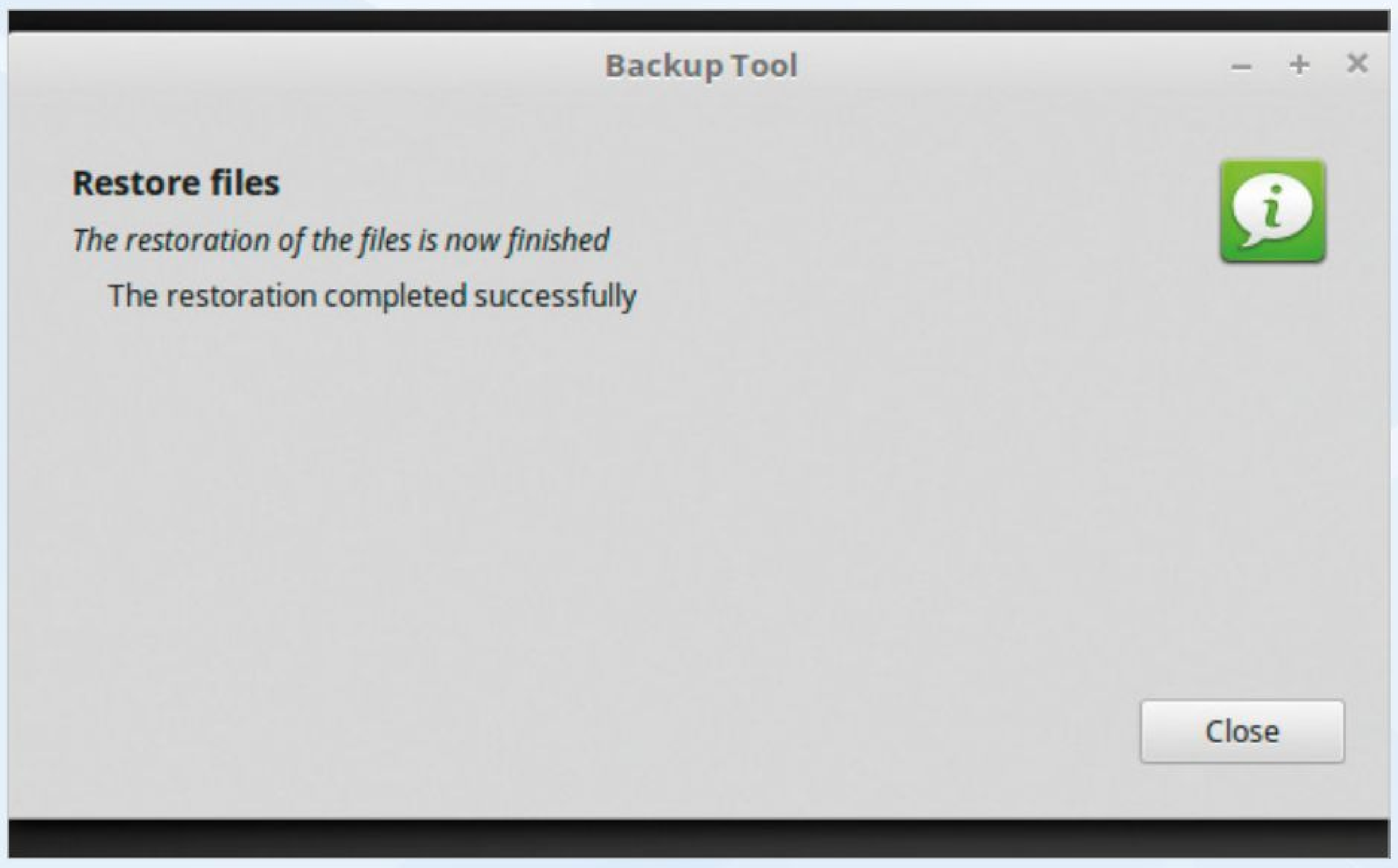
Restore files

Please wait while your files are being restored

57 / 98.0

Restoring: Crash-86.jpg

STEP 9 When the file restore is finished, you'll receive a notice of success or any failures. Read through the failures, if there are any, to see where the restore process went wrong and how you can recover the non-restored files. Otherwise, if everything went fine, click the Close button to finish the restore.

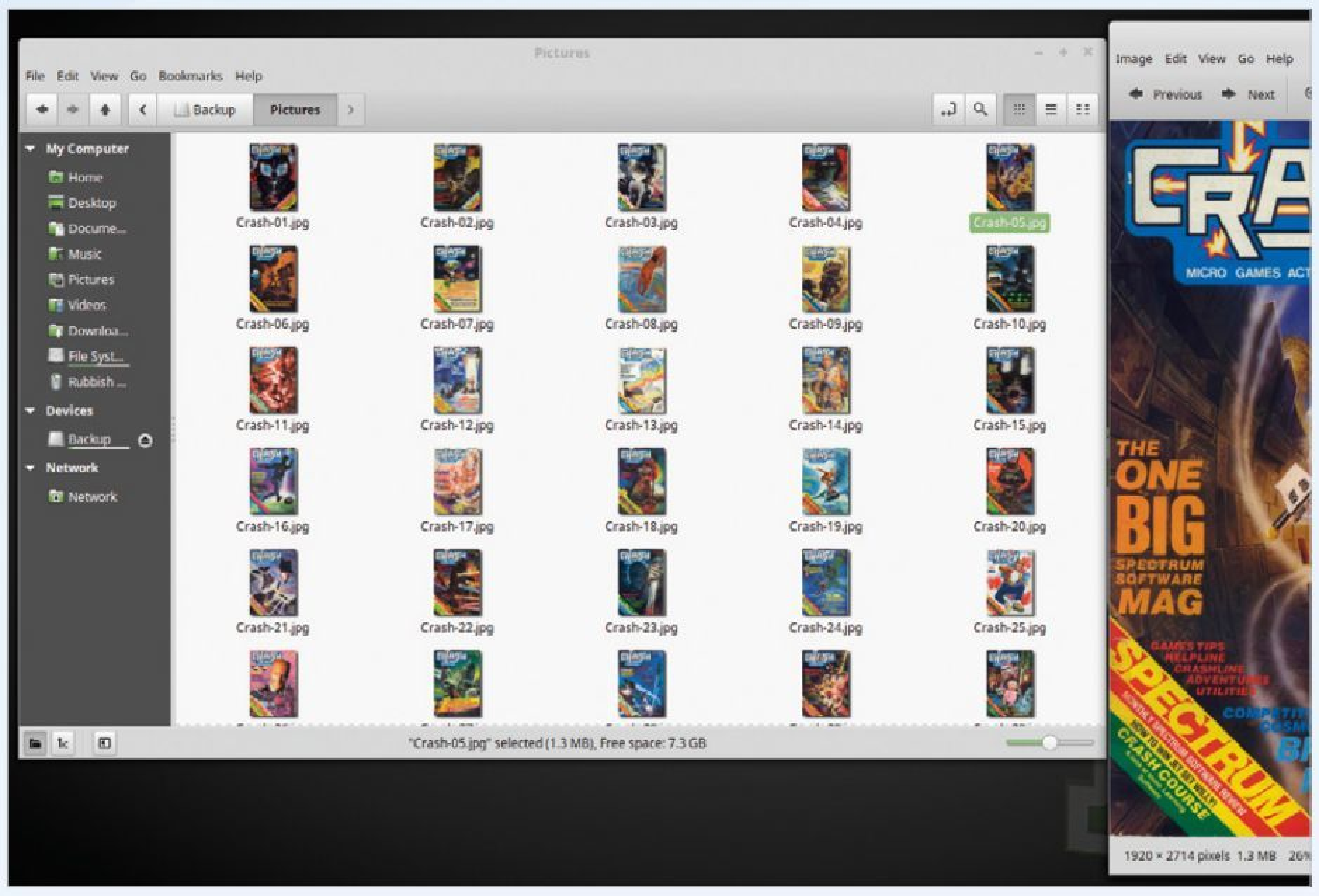

Backup Tool

Restore files

The restoration of the files is now finished

The restoration completed successfully

STEP 10 If you now look to the folder where your files have been restored, they should all be there and accessible as before. If anything went wrong or they aren't there, repeat the steps and check to see if the source and destination locations are correct.


"Crash-05.jpg" selected (1.3 MB), Free space: 7.3 GB

Pictures
File Edit View Go Bookmarks Help
Backup
Pictures
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Devices
Backup
Network
Network
Crash-01.jpg
Crash-02.jpg
Crash-03.jpg
Crash-04.jpg
Crash-05.jpg
Crash-06.jpg
Crash-07.jpg
Crash-08.jpg
Crash-09.jpg
Crash-10.jpg
Crash-11.jpg
Crash-12.jpg
Crash-13.jpg
Crash-14.jpg
Crash-15.jpg
Crash-16.jpg
Crash-17.jpg
Crash-18.jpg
Crash-19.jpg
Crash-20.jpg
Crash-21.jpg
Crash-22.jpg
Crash-23.jpg
Crash-24.jpg
Crash-25.jpg
Image Edit View Go Help
Previous
Next
1920 × 2714 pixels 1.3 MB

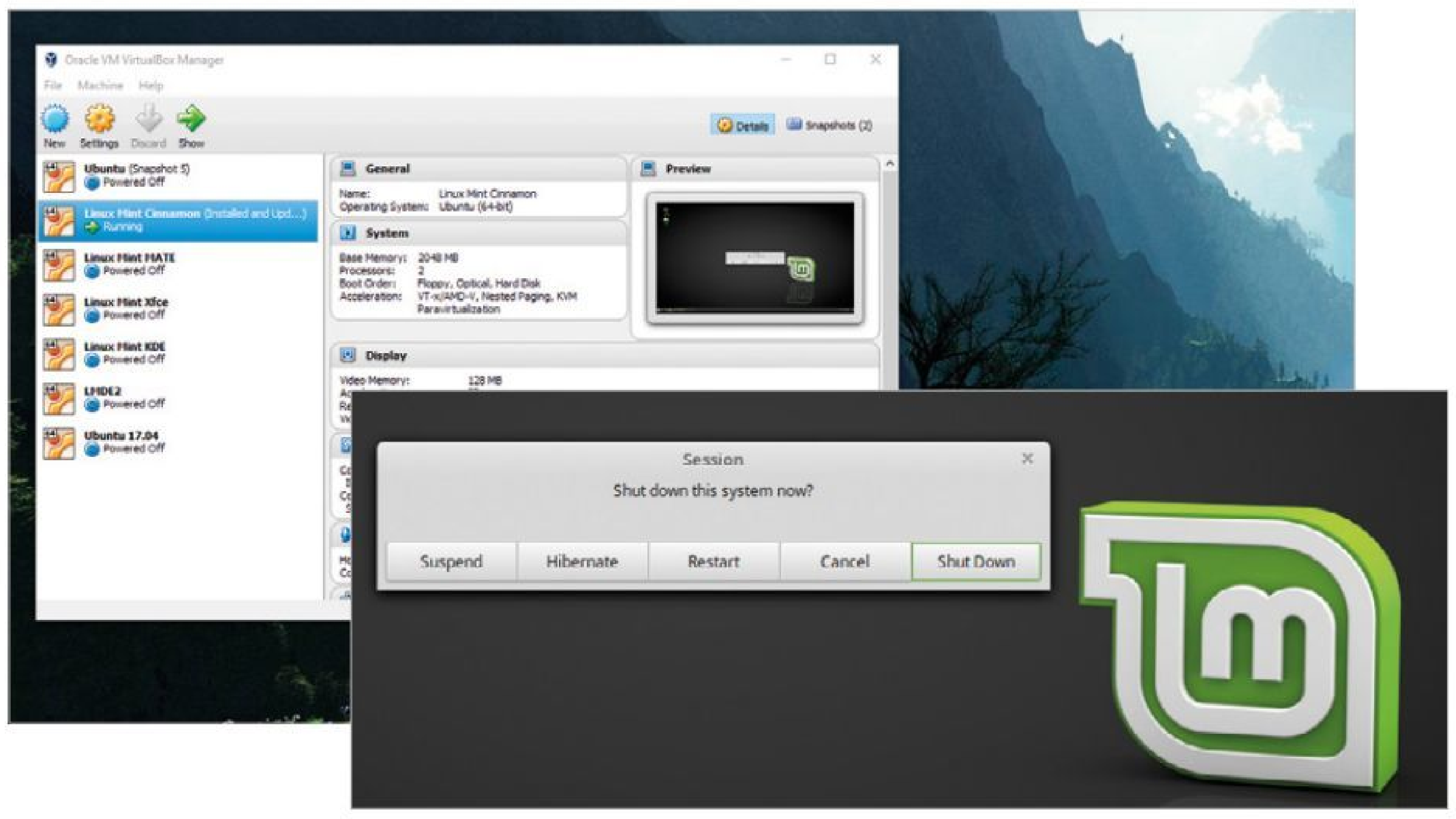
Backup Linux Mint in a Virtual Environment

Although backing up Linux Mint isn't too difficult, those who use the OS in Virtualbox have a far easier time of creating a backed-up image of the OS. With Virtualbox you can create snapshots of a guest operating system, which can easily be restored.

TAKE A SNAPSHOT

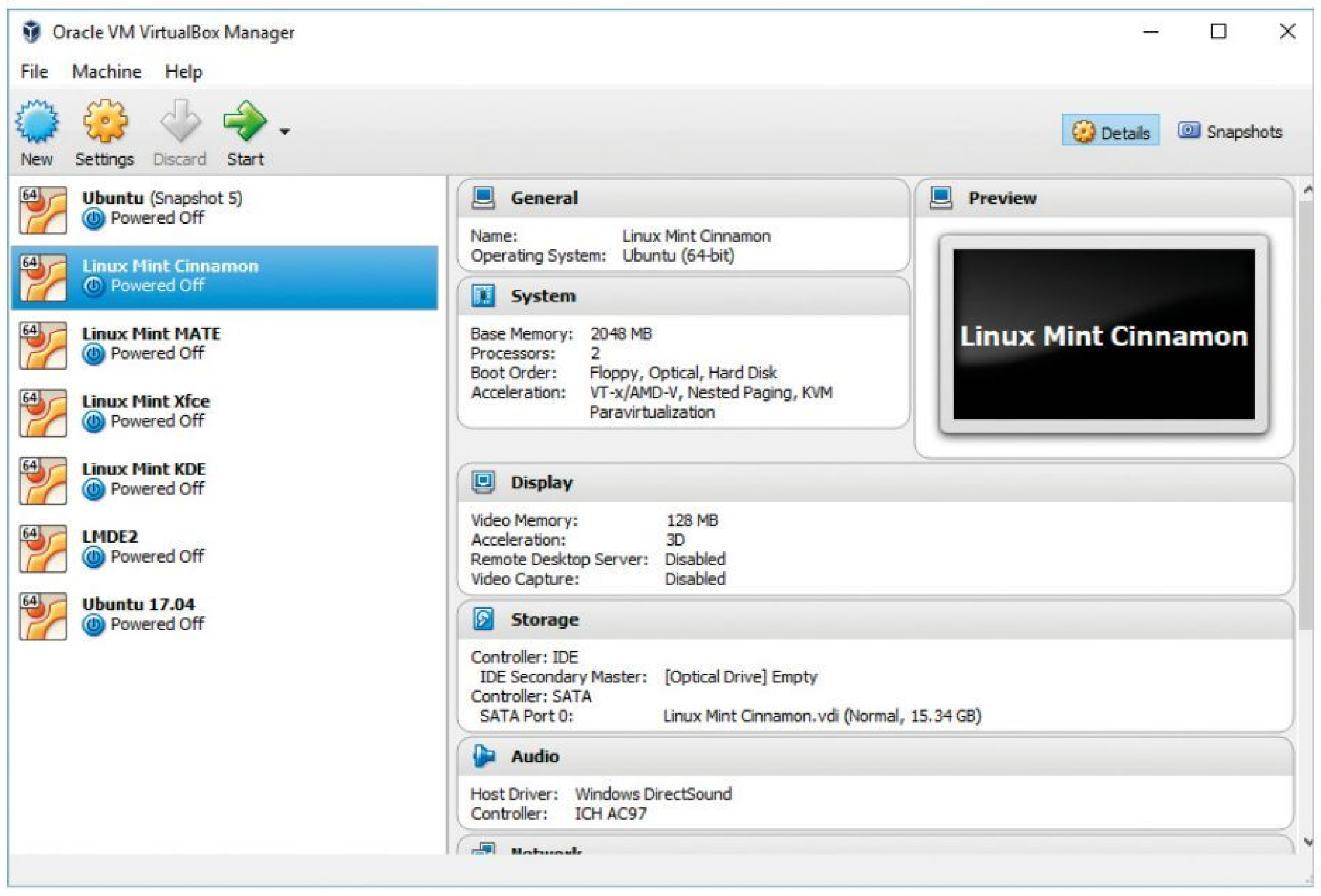
Mint is installed, it's updated, and several apps added. Something then goes wrong and it becomes unbootable. If you take a Virtualbox Snapshot, you can return to where you left off in an instant.

STEP 1 Remember folks, this is just for those users who are running Mint in Virtualbox. Other virtual machine clients will work differently, but all will offer some form of snapshot function, so you may need to refer to the client's manual. To begin with, open Virtualbox. If it's already open, shutdown the Mint Virtualbox image.


Session

Shut down this system now?
Oracle VM VirtualBox Manager
Suspend
Hibernate
Restart
Cancel
Shut Down

STEP 2 A snapshot in Virtualbox is simply an image of what the virtual machine 'looked' like at the time the snapshot was taken. You can make multiple snapshots and revert to any whenever you wish. Here we have six different Linux guest systems: Ubuntu, Mint Cinnamon, MATE, Xfce, KDE and LMDE2.


Oracle VM VirtualBox Manager
File
Machine
Help
New
Settings
Discard
Start
Details
Snapshots
Ubuntu (Snapshot 5)
Powered Off
Linux Mint Cinnamon
Powered Off
Linux Mint MATE
Powered Off
Linux Mint Xfce
Powered Off
Linux Mint KDE
Powered Off
LMDE2
Powered Off
Ubuntu 17.04
Powered Off
Preview
Linux Mint Cinnamon

General

Name: Linux Mint Cinnamon
Operating System: Ubuntu (64-bit)

System

Base Memory: 2048 MB
Processors: 2
Boot Order: Floppy, Optical, Hard Disk
Acceleration: VT-x/AMD-V, Nested Paging, KVM Paravirtualization

Display

Video Memory: 128 MB
Acceleration: 3D
Remote Desktop Server: Disabled
Video Capture: Disabled

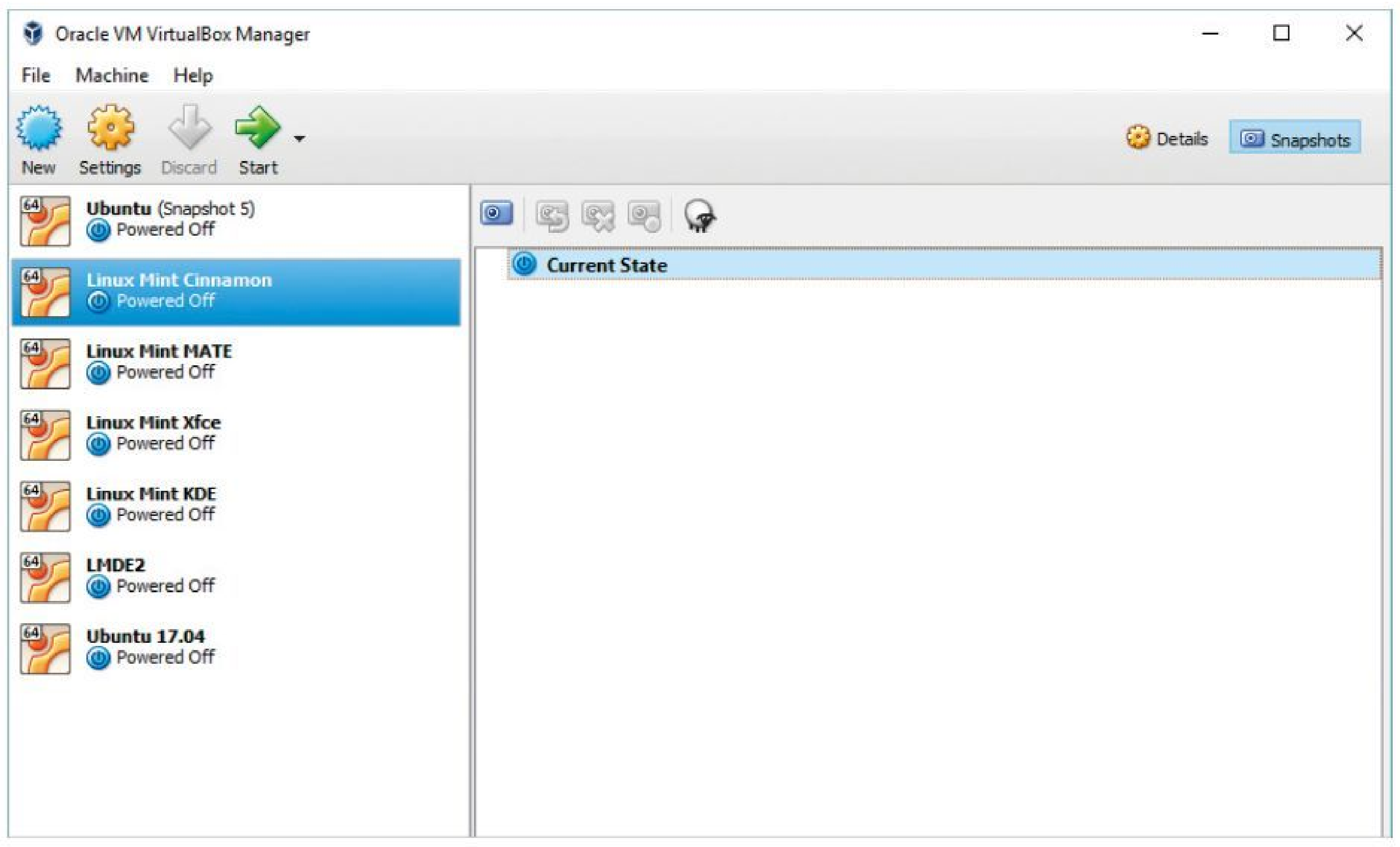
Storage

Controller: IDE
IDE Secondary Master: [Optical Drive] Empty
Controller: SATA
SATA Port 0: Linux Mint Cinnamon.vdi (Normal, 15.34 GB)

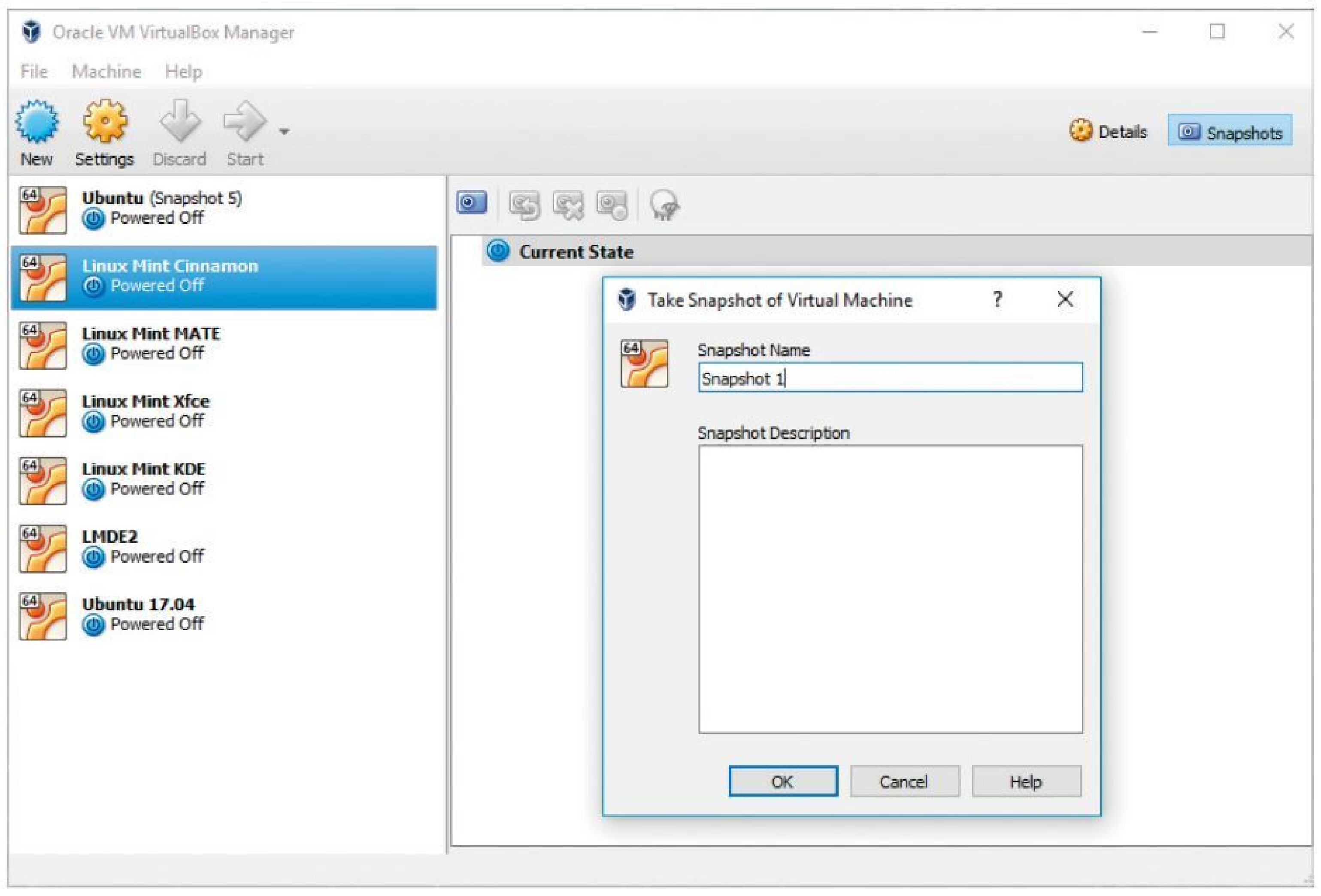
Audio

Host Driver: Windows DirectSound
Controller: ICH AC97

STEP 3 Note that the state of all the virtual system is currently Powered Off. To create a snapshot of the Linux Mint Cinnamon system, left-click to highlight the system's entry in Virtualbox, then click on the Snapshots button, located to the far-right of the Virtualbox console: it's a camera icon.

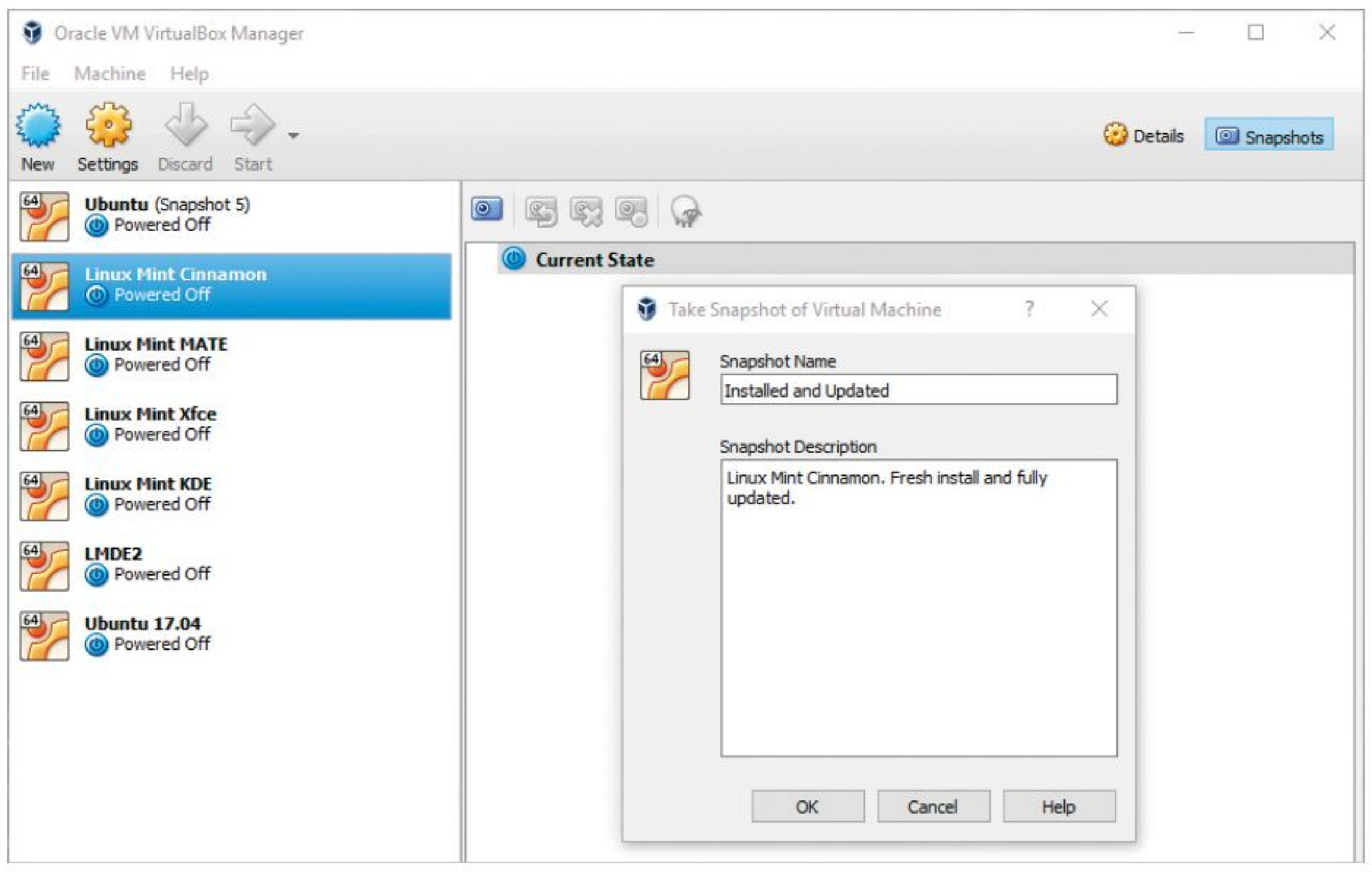

Oracle VM VirtualBox Manager
File
Machine
Help
New
Settings
Discard
Start
Details
Snapshots
Ubuntu (Snapshot 5)
Powered Off
Linux Mint Cinnamon
Powered Off
Linux Mint MATE
Powered Off
Linux Mint Xfce
Powered Off
Linux Mint KDE
Powered Off
LMDE2
Powered Off
Ubuntu 17.04
Powered Off
Current State

STEP 4 At present there aren't any snapshots of Mint Cinnamon available. To create one, click the camera icon just above the words Current State; the icon at the opposite end of the sheep icon. This will launch the Take Snapshot of Virtual Machine console window.


Take Snapshot of Virtual Machine

Snapshot Name: Snapshot 1
Oracle VM VirtualBox Manager
File
Machine
Help
New
Settings
Discard
Start
Details
Snapshots
Ubuntu (Snapshot 5)
Powered Off
Linux Mint Cinnamon
Powered Off
Linux Mint MATE
Powered Off
Linux Mint Xfce
Powered Off
Linux Mint KDE
Powered Off
LMDE2
Powered Off
Ubuntu 17.04
Powered Off
Current State
Snapshot Description
OK
Cancel
Help

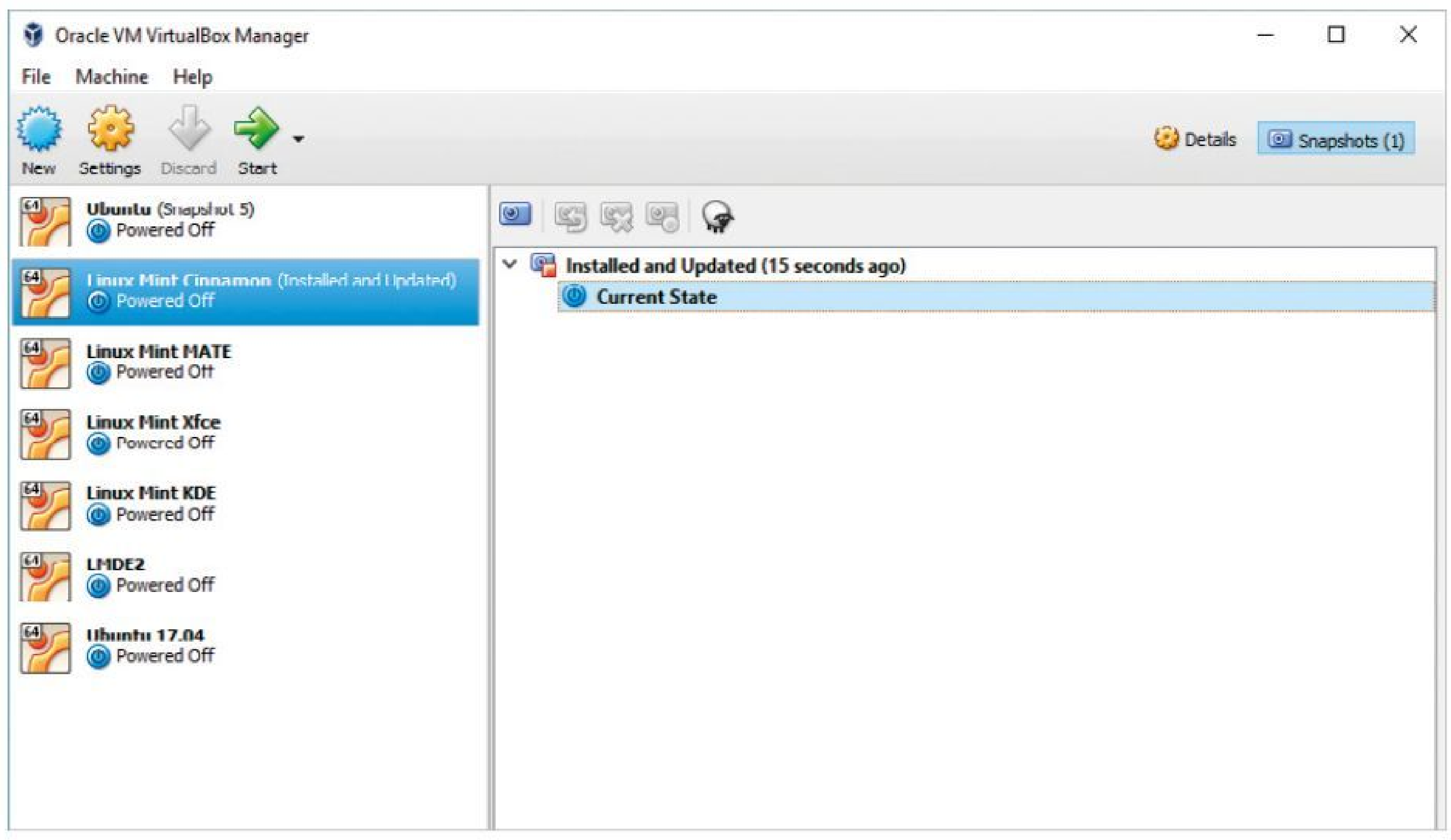
STEP 5 If you want you can name the snapshot, Installed and Updated for example, along with a description to better help identify it from the other snapshots you'll eventually end up making. It's not hugely important but if someone else needs to load up Cinnamon, they can see which snapshot to go for. When you're done, click the OK button.


Oracle VM VirtualBox Manager
File Machine Help
New Settings Discard Start
Details Snapshots
Ubuntu (Snapshot 5) Powered Off
Linux Mint Cinnamon Powered Off
Linux Mint MATE Powered Off
Linux Mint Xfce Powered Off
Linux Mint KDE Powered Off
LMDE2 Powered Off
Ubuntu 17.04 Powered Off
Current State
Take Snapshot of Virtual Machine
OK Cancel Help

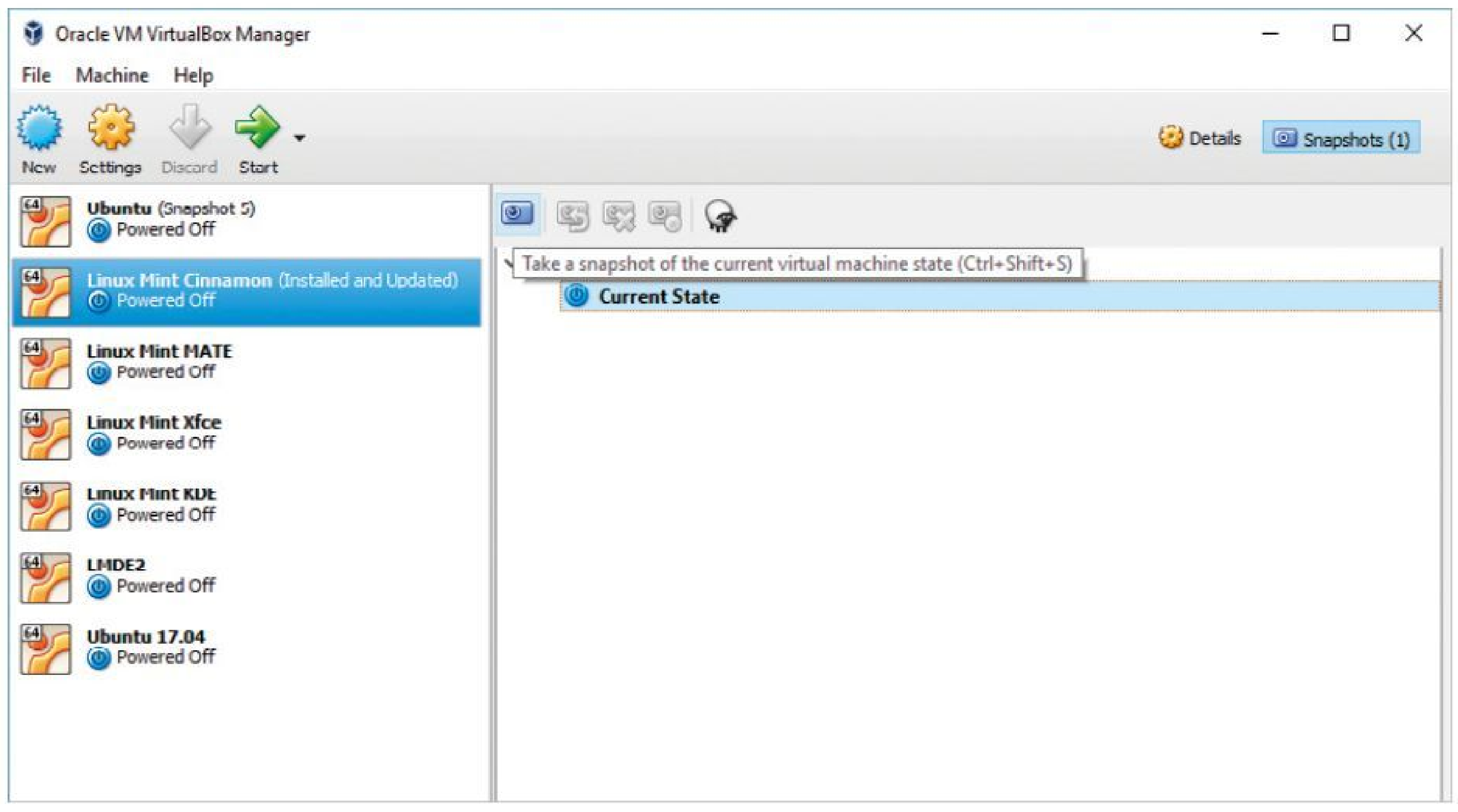
Snapshot Name: Installed and Updated

Snapshot Description: Linux Mint Cinnamon. Fresh install and fully updated.

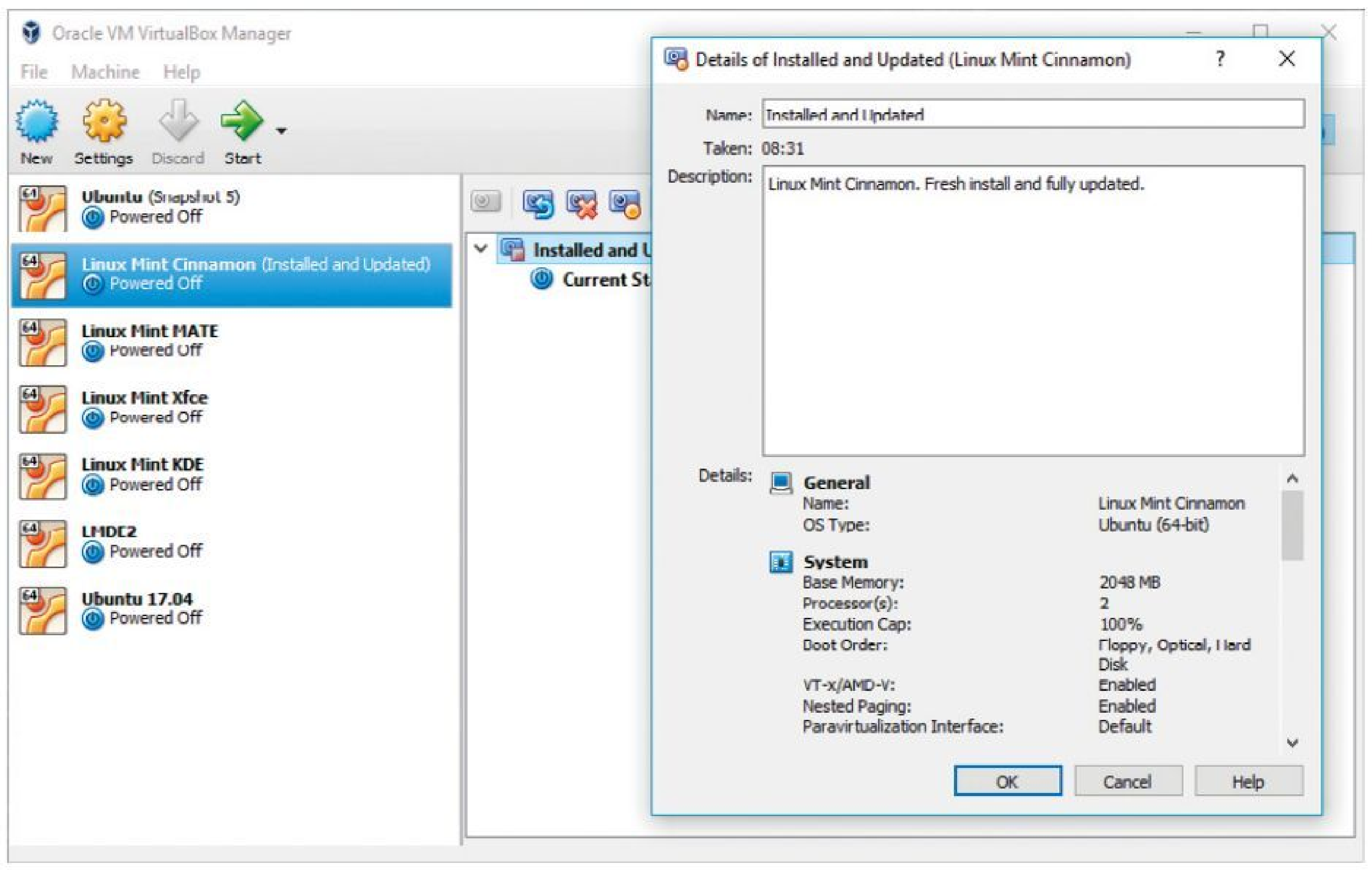
STEP 6 The process will happen almost instantly, and you're left with an entry in the snapshots section detailing the named snapshot, how long ago it was taken and a Current State entry. The Current State is literally its state when you boot it up. With it highlighted, you can take more snapshots by using the camera icon again.


Oracle VM VirtualBox Manager
File Machine Help
New Settings Discard Start
Details Snapshots (1)
Ubuntu (Snapshot 5) Powered Off
Linux Mint Cinnamon (Installed and Updated) Powered Off
Linux Mint MATE Powered Off
Linux Mint Xfce Powered Off
Linux Mint KDE Powered Off
LMDE2 Powered Off
Ubuntu 17.04 Powered Off
Installed and Updated (15 seconds ago)
Current State

STEP 7 If you left-click the named snapshot, you have more options available in the toolbar just above. Here you can Restore a selected snapshot, if you have multiple entries. You can Delete a snapshot and view detailed information regarding one; with the sheep, you can Clone the current snapshot as a new virtual machine.


Oracle VM VirtualBox Manager
File Machine Help
New Settings Discard Start
Details Snapshots (1)
Ubuntu (Snapshot 5) Powered Off
Linux Mint Cinnamon (Installed and Updated) Powered Off
Linux Mint MATE Powered Off
Linux Mint Xfce Powered Off
Linux Mint KDE Powered Off
LMDE2 Powered Off
Ubuntu 17.04 Powered Off
Take a snapshot of the current virtual machine state (Ctrl+Shift+S)
Current State

STEP 8 If you click the Details of the named virtual machine icon, the one next to the sheep represented by an orange circle, you can view the Virtualbox settings of that particular snapshot. This way you're able to assess any issues that may arise with other virtual machines; then you can see which settings worked and which didn't.


Oracle VM VirtualBox Manager
File Machine Help
New Settings Discard Start
Ubuntu (Snapshot 5) Powered Off
Linux Mint Cinnamon (Installed and Updated) Powered Off
Linux Mint MATE Powered Off
Linux Mint Xfce Powered Off
Linux Mint KDE Powered Off
LMDE2 Powered Off
Ubuntu 17.04 Powered Off
Details of Installed and Updated (Linux Mint Cinnamon)
OK Cancel Help

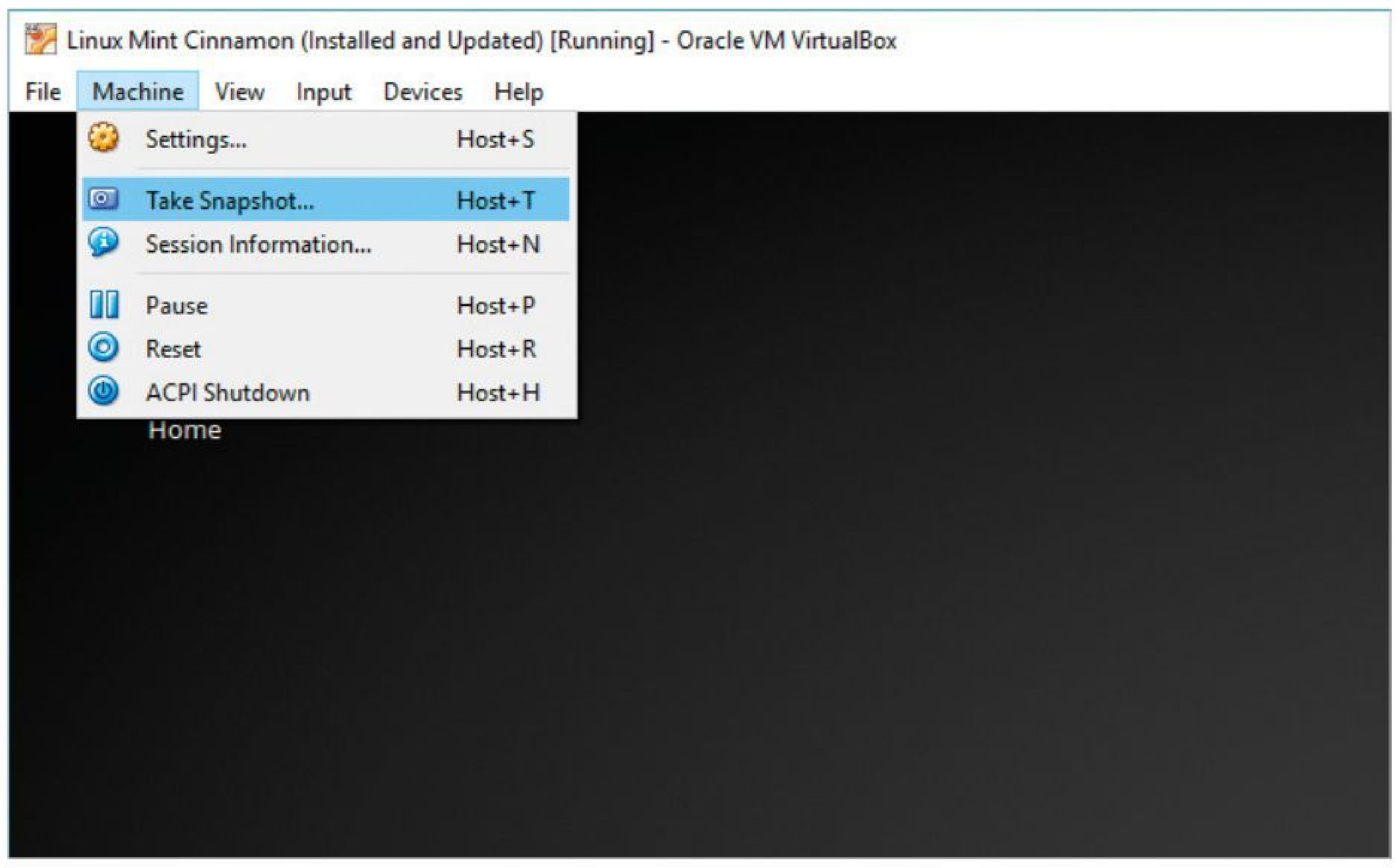
Name: Installed and Updated
Taken: 08:31
Description: Linux Mint Cinnamon. Fresh install and fully updated.

Details:

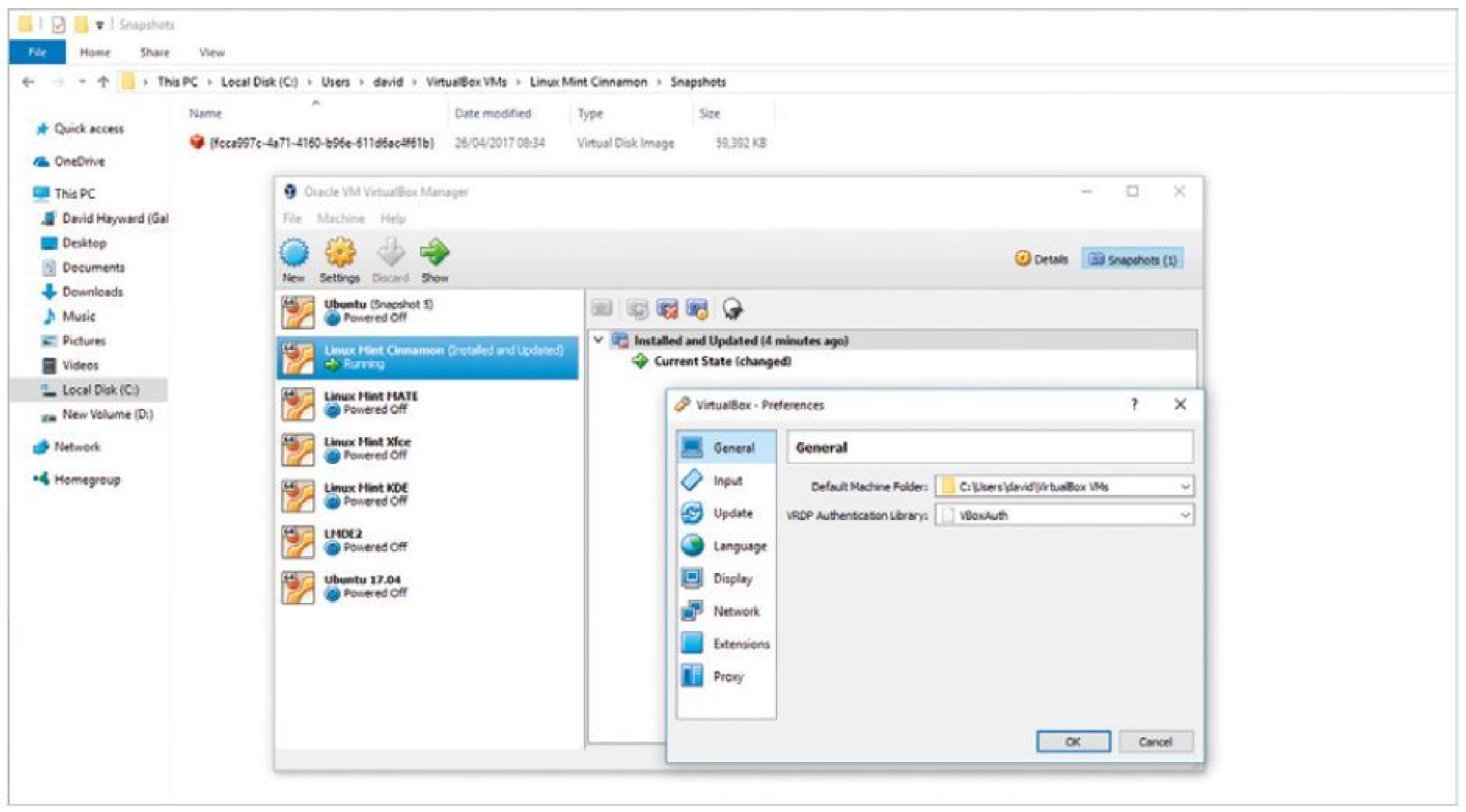
General
Name: Linux Mint Cinnamon
OS Type: Ubuntu (64-bit)

System
Base Memory: 2048 MB
Processor(s): 2
Execution Cap: 100%
Boot Order: Floppy, Optical, Hard Disk
VT-x/AMD-V: Enabled
Nested Paging: Enabled
Paravirtualization Interface: Default

STEP 9 Although we shutdown the guest system, a Virtualbox guest doesn't need to be shutdown in order for a snapshot to be taken. For example, prior to installing an experimental app, click the Machine entry in the Virtualbox top menu bar and choose Take Snapshot. The process works the same way as in Steps 4 onward.


Linux Mint Cinnamon (Installed and Updated) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Settings... Host+S
Take Snapshot... Host+T
Session Information... Host+N
Pause Host+P
Reset Host+R
ACPI Shutdown Host+H
Home

STEP 10 Each snapshot taken can be reverted back to, cloned, deleted and so on. However, snapshots are stored by default in the Users/username/VirtualBox VMs folder in Windows. So if you only have a limited amount of space on your C:\ drive, you may want to set the path to a bigger hard drive in the File > Preferences option in Virtualbox.


Snapshots
This PC › Local Disk (C:) › Users › david › VirtualBox VMs › Linux Mint Cinnamon › Snapshots
Oracle VM VirtualBox Manager
Installed and Updated (4 minutes ago)
Current State (changed)
VirtualBox - Preferences
General
Input
Update
Language
Display
Network
Extensions
Proxy
Default Machine Folder:
VRDP Authentication Library:
OK Cancel

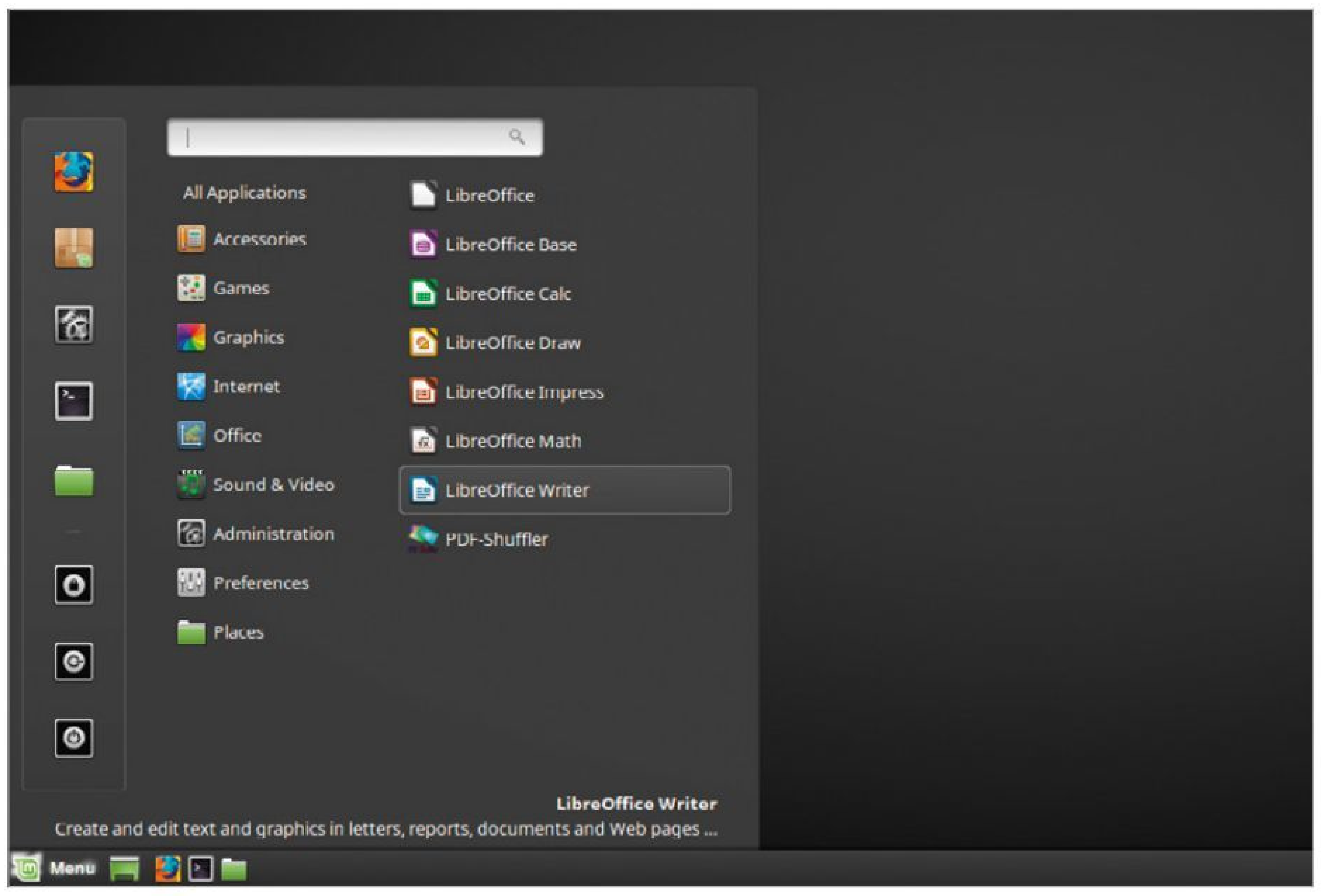
Exploring LibreOffice Writer

Microsoft's Office suite is the most popular productivity and word processing app in the world but you need to buy it to enjoy its benefits. LibreOffice on the other hand is free and comes preinstalled with Mint.

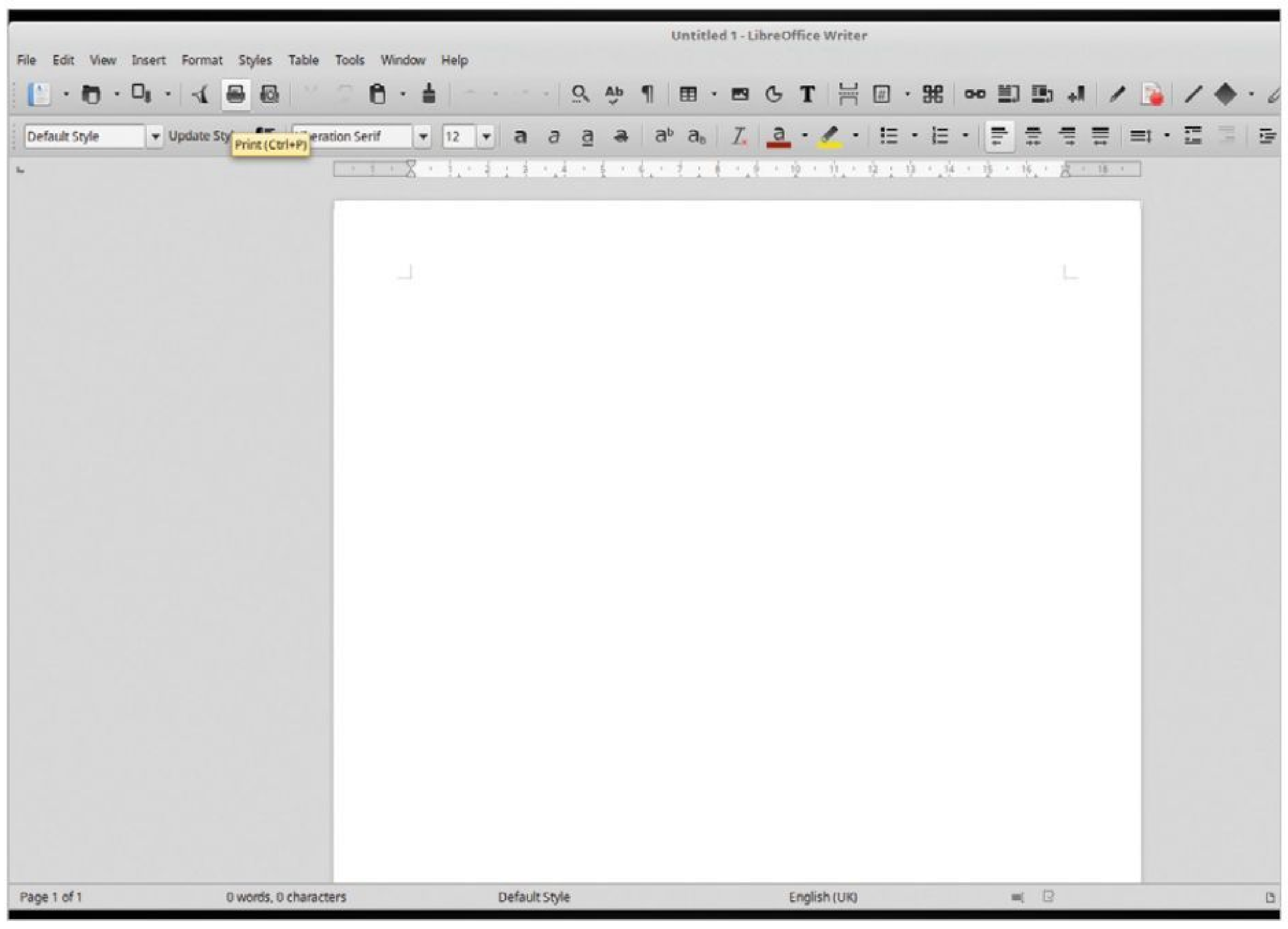
WORD ALTERNATIVE

It's entirely possible to have LibreOffice Writer work with Word documents and to customise it to behave more like Microsoft's offering.

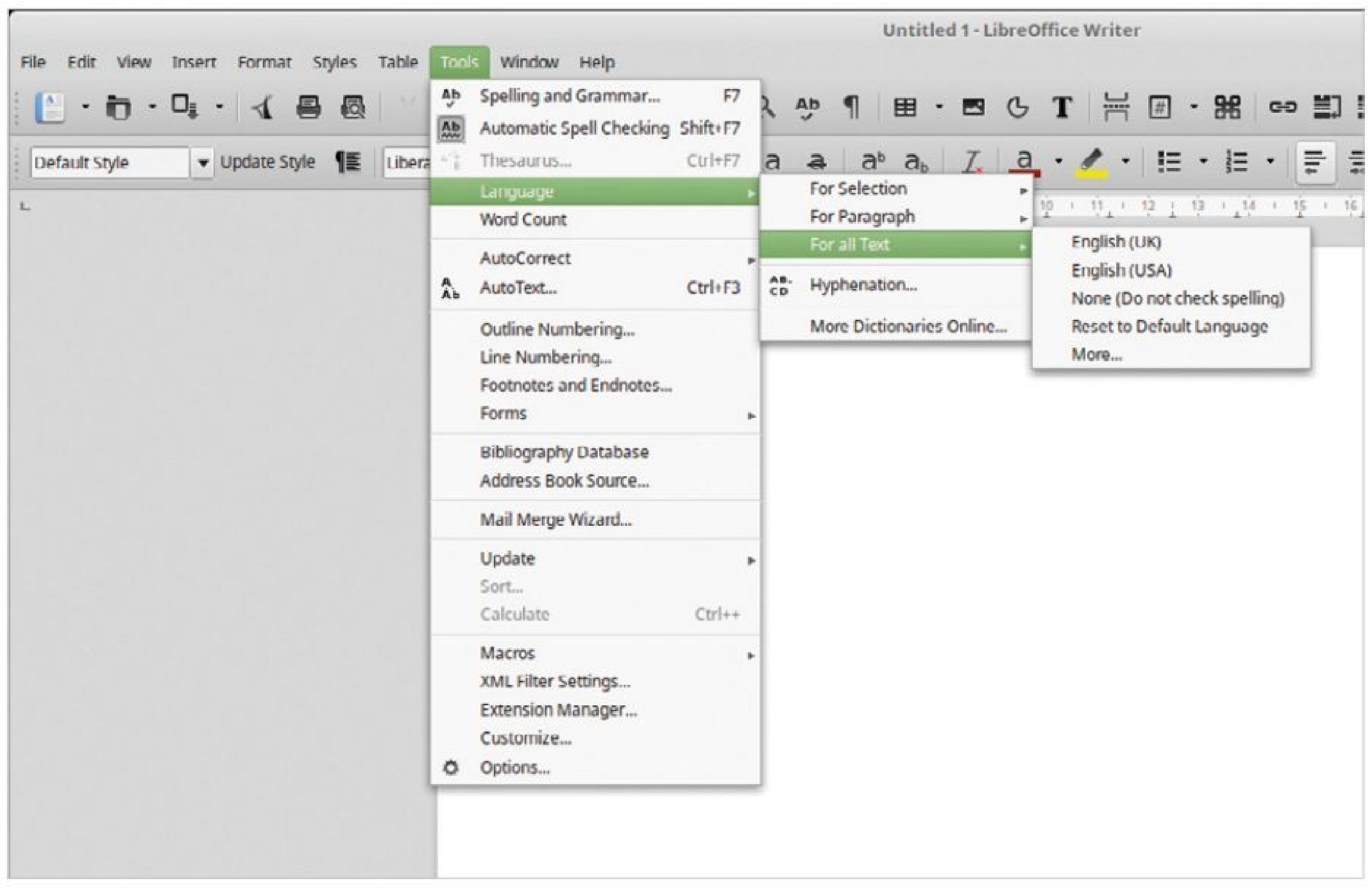
STEP 1 The first thing to do is launch LibreOffice Writer. By default, you can find it in the Mint Menu under the Office section. Just click the LibreOffice Writer icon to open it.


All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
LibreOffice
LibreOffice Base
LibreOffice Calc
LibreOffice Draw
LibreOffice Impress
LibreOffice Math
LibreOffice Writer
PDF-Shuffler
LibreOffice Writer
Create and edit text and graphics in letters, reports, documents and Web pages ...
Menu

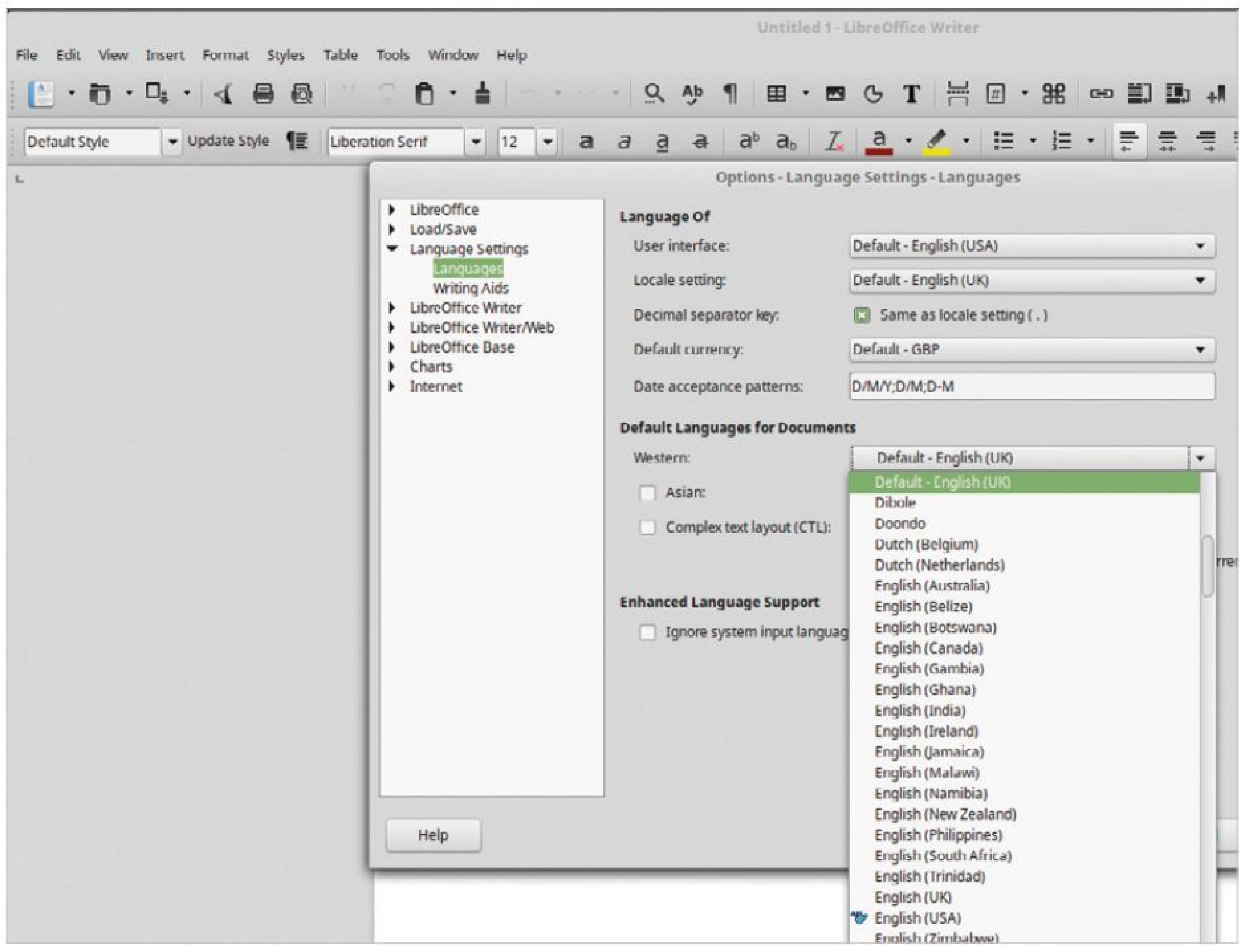
STEP 2 As you can see it already looks very similar to that of an earlier version of MS Word. The ribbon bar along the top houses numerous options for formatting, saving, spelling, inserting objects and so on.


Untitled 1 - LibreOffice Writer
File Edit View Insert Format Styles Table Tools Window Help
Default Style
Update Style
Print (Ctrl+P)
Liberation Serif
12
Page 1 of 1
0 words, 0 characters
Default Style
English (UK)

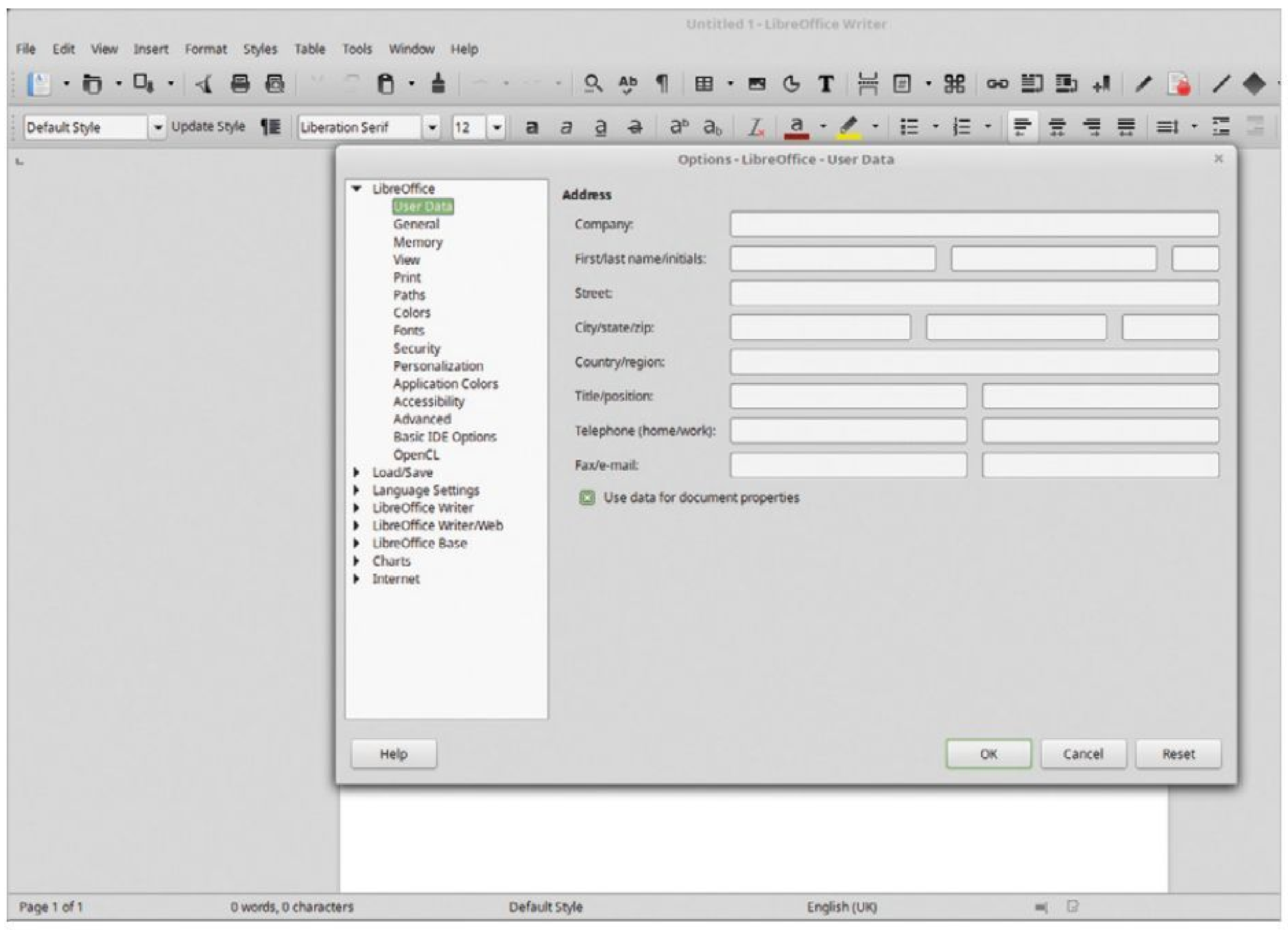
STEP 3 In order to personalise it, the first option to customise is the default text language. Both English UK and USA are installed but to choose which you prefer, or to install a new language, click on Tools > Language > For all Text via the Menu Bar.


Untitled 1 - LibreOffice Writer
File Edit View Insert Format Styles Table Tools Window Help
Spelling and Grammar... F7
Automatic Spell Checking Shift+F7
Thesaurus... Ctrl+F7
Language
Word Count
AutoCorrect
AutoText... Ctrl+F3
Outline Numbering...
Line Numbering...
Footnotes and Endnotes...
Forms
Bibliography Database
Address Book Source...
Mail Merge Wizard...
Update
Sort...
Calculate Ctrl++
Macros
XML Filter Settings...
Extension Manager...
Customize...
Options...
For Selection
For Paragraph
For all Text
Hyphenation...
More Dictionaries Online...
English (UK)
English (USA)
None (Do not check spelling)
Reset to Default Language
More...

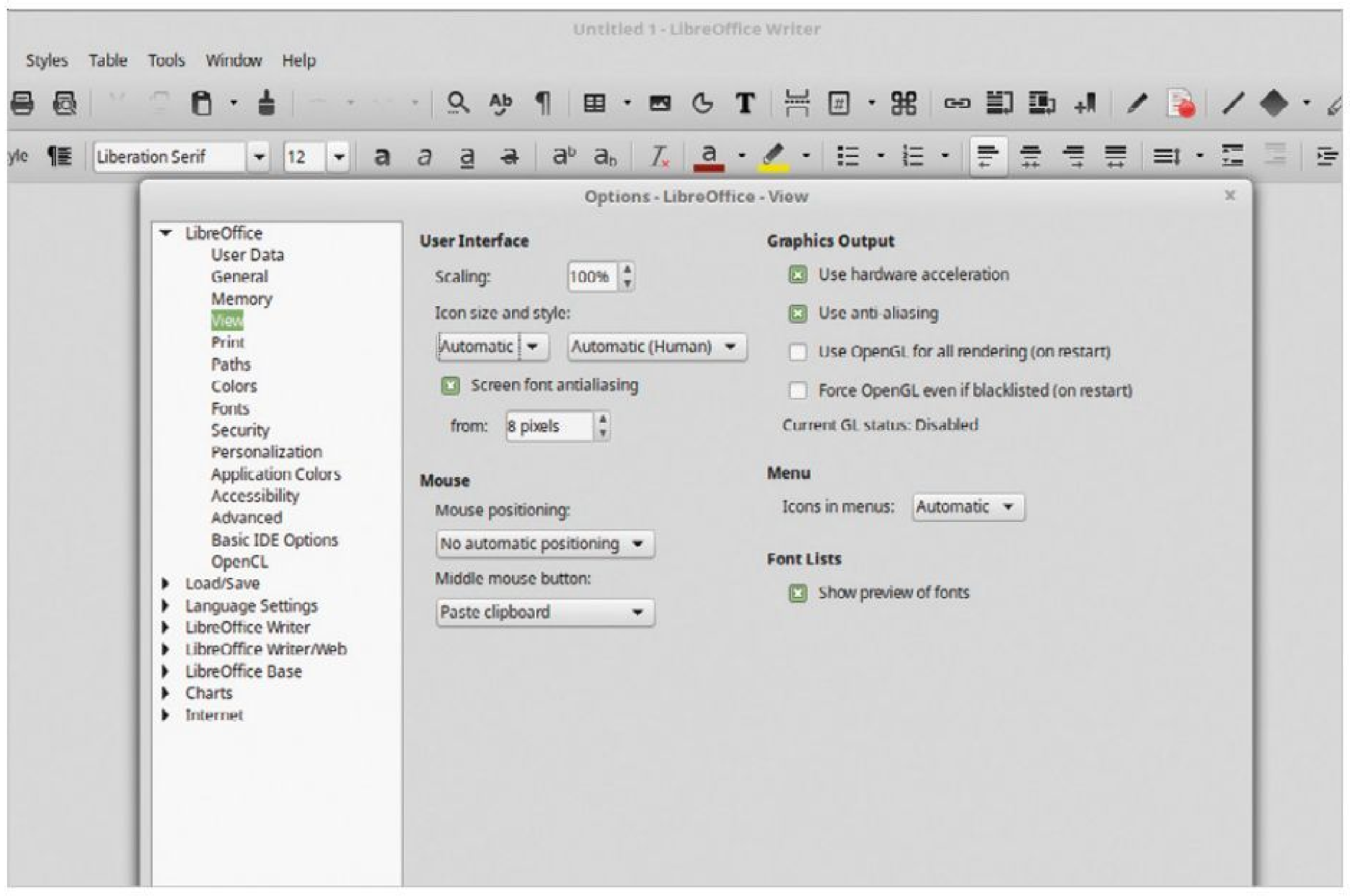
STEP 4 You can then click on English UK, USA or, for a new language, click 'More...' followed by the drop-down boxes under the Default Languages for Documents section.


Untitled 1 - LibreOffice Writer
Options - Language Settings - Languages
LibreOffice
Load/Save
Language Settings
Languages
Writing Aids
LibreOffice Writer
LibreOffice Writer/Web
LibreOffice Base
Charts
Internet
Language Of
User interface: Default - English (USA)
Locale setting: Default - English (UK)
Decimal separator key: Same as locale setting (.)
Default currency: Default - GBP
Date acceptance patterns: D/M/Y;D/M;D-M
Default Languages for Documents
Western: Default - English (UK)
Asian:
Complex text layout (CTL):
Enhanced Language Support
Ignore system input language
Help
Default - English (UK)
Dibole
Doondo
Dutch (Belgium)
Dutch (Netherlands)
English (Australia)
English (Belize)
English (Botswana)
English (Canada)
English (Gambia)
English (Ghana)
English (India)
English (Ireland)
English (Jamaica)
English (Malawi)
English (Namibia)
English (New Zealand)
English (Philippines)
English (South Africa)
English (Trinidad)
English (UK)
English (USA)
English (Zimbabwe)

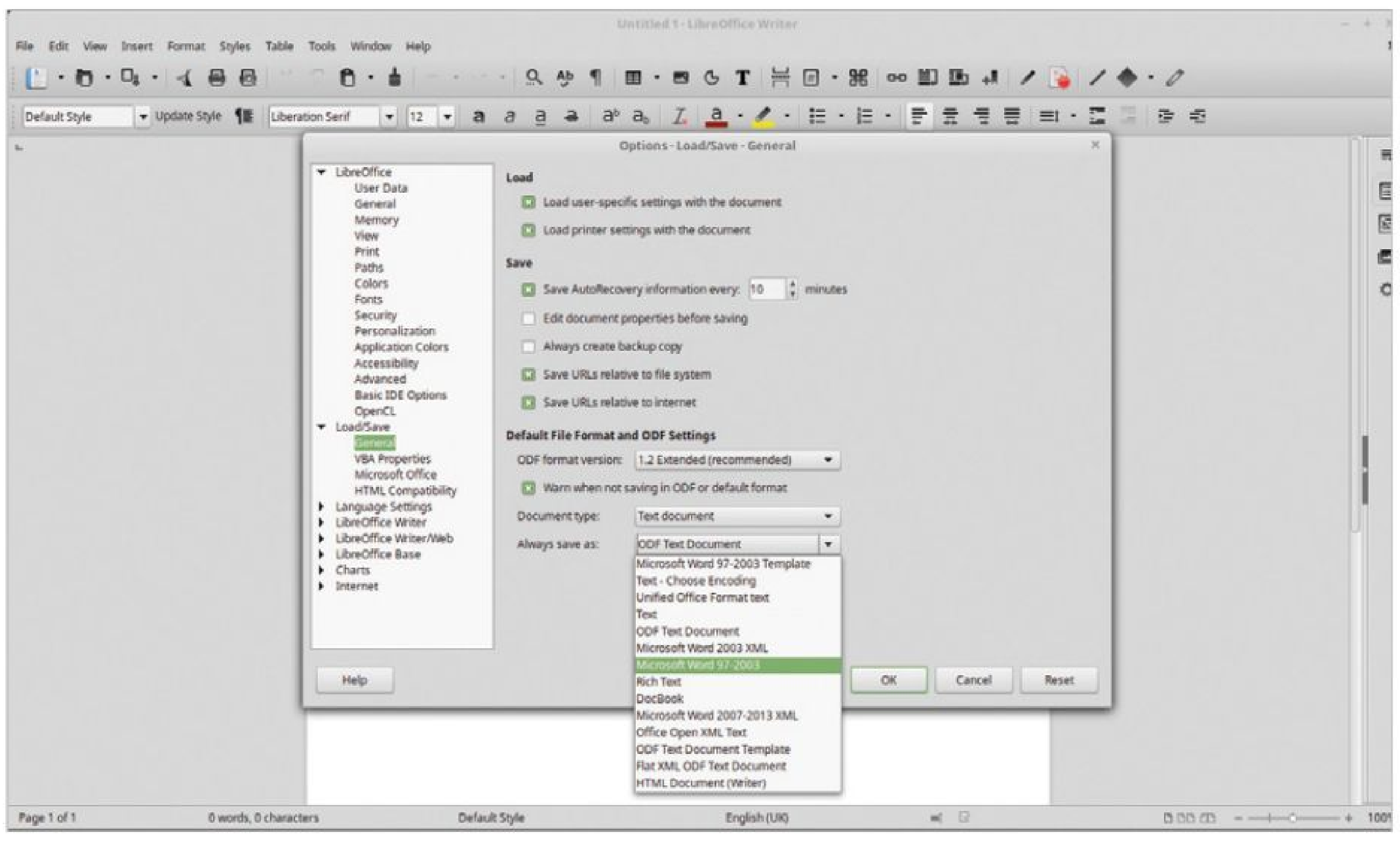
STEP 5 To further customise Writer click on the Tools option in the Menu Bar again, followed by Options. This will bring a huge list of possible customisation options. You can begin by entering your User Data, if you wish.



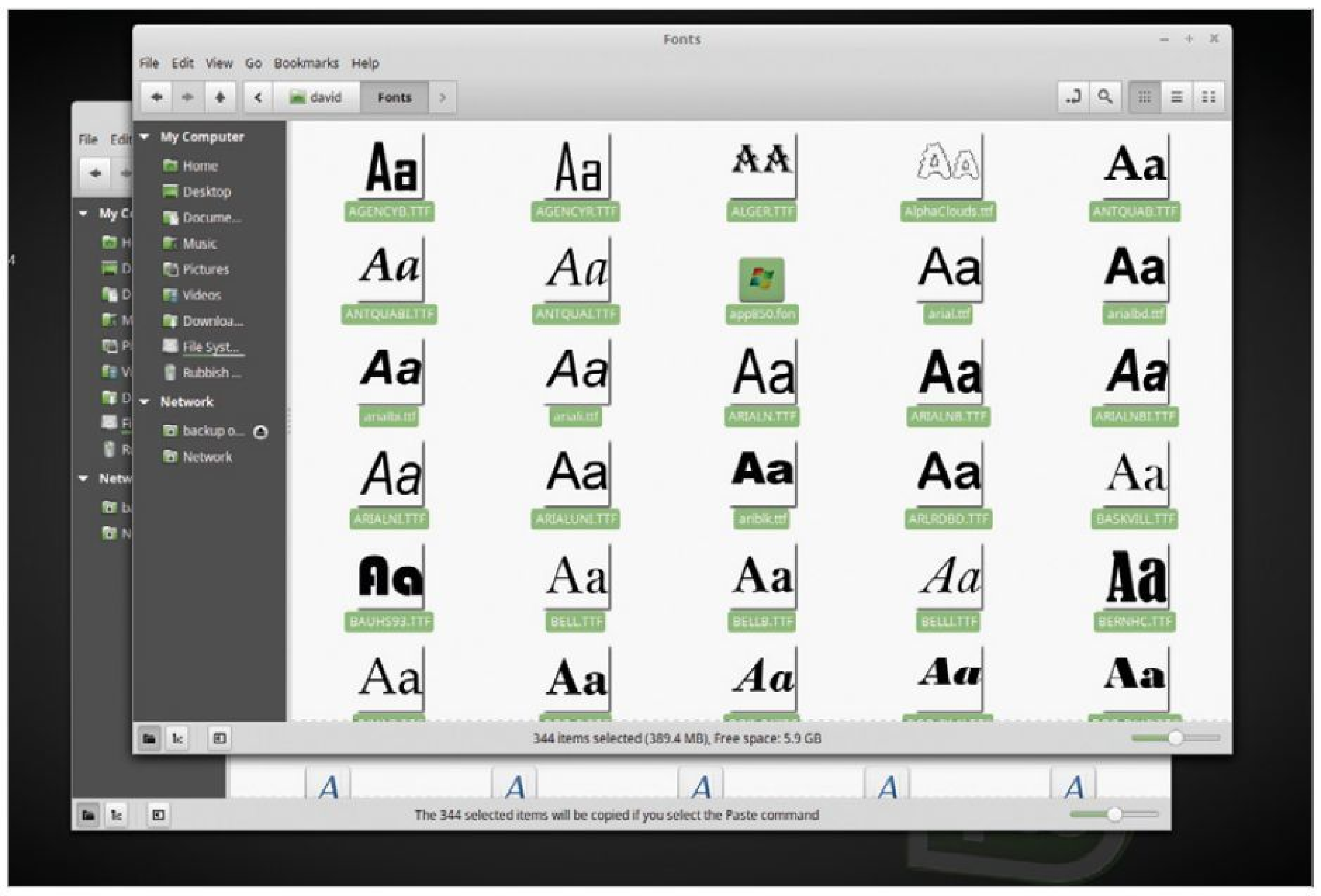
STEP 6 In the View section you're able to change the menu bar icon size and style. Then you can apply hardware acceleration for better graphics or use OpenGL if your graphics card can't render the details correctly.



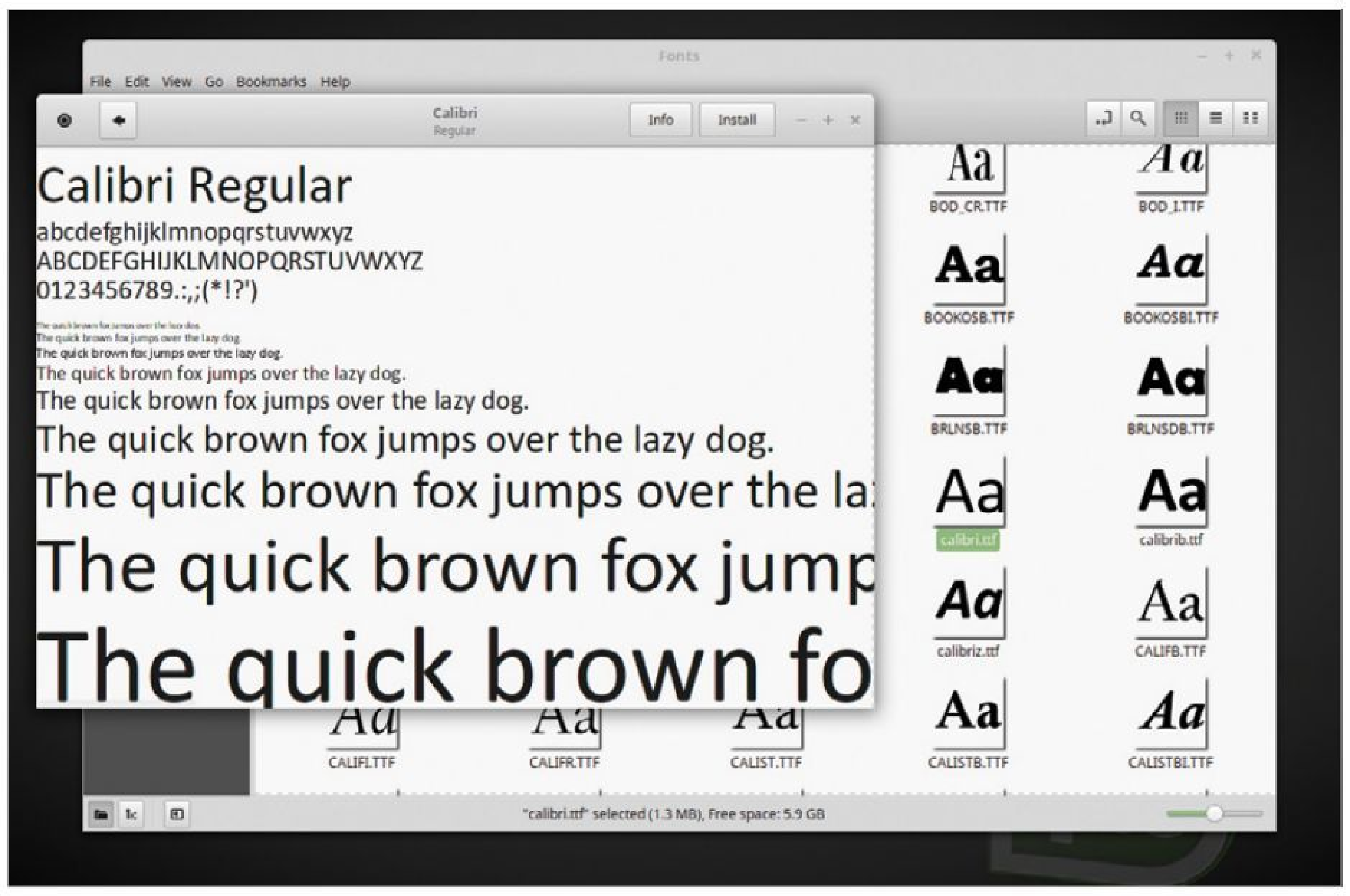
STEP 7 To allow Writer to automatically save as a Word compatible document, so that any document you produce and save in Writer can be opened in Word, click on the General option under Load/Save. Now click the 'Always Save As' drop-down menu and choose the MS Word version you prefer.



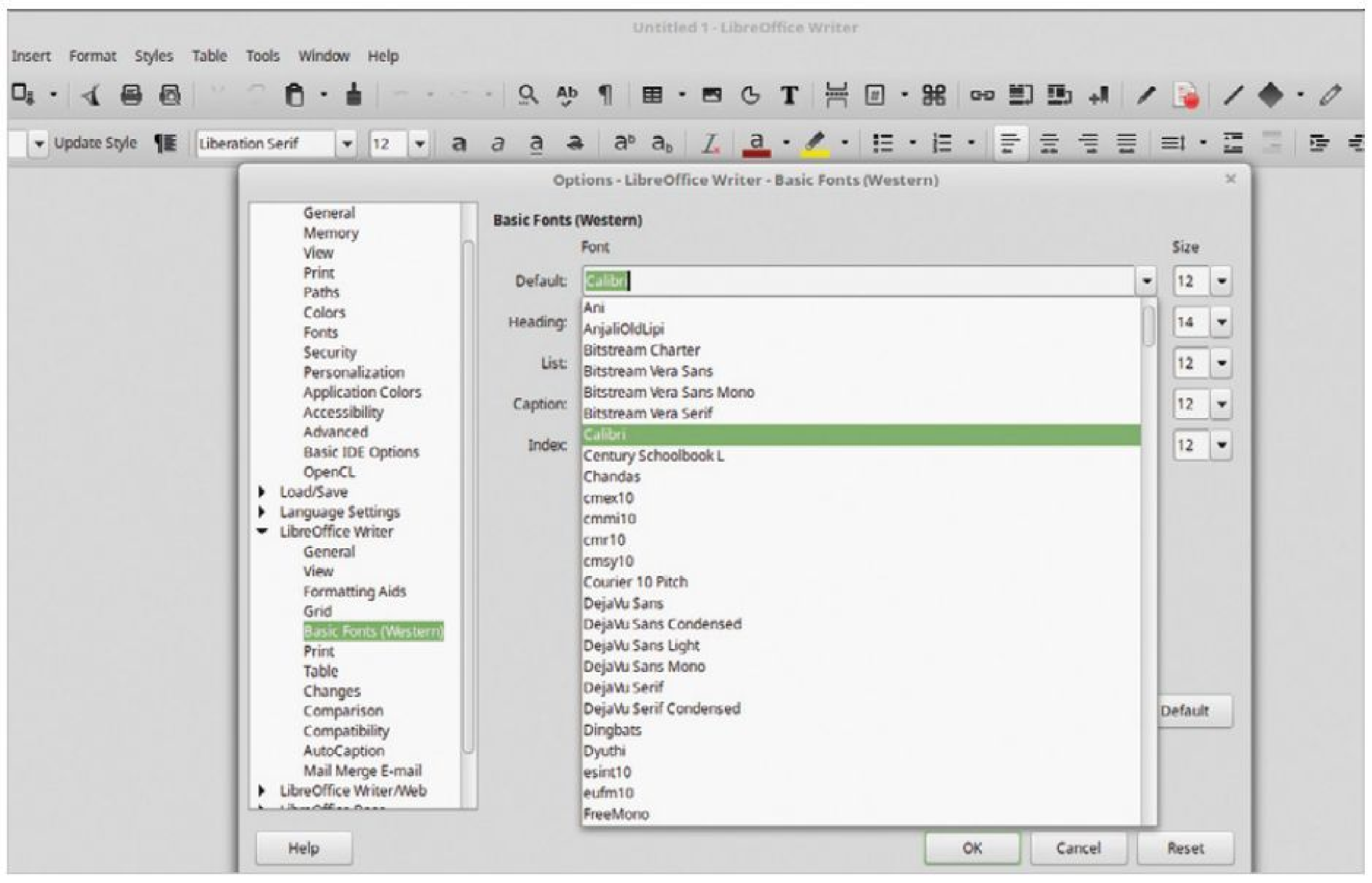
STEP 8 If you want to use the more modern ClearType fonts as used in Word 2007 and above, you can copy them directly from a Windows system. Locate the fonts in Windows via the folder c:\Windows\Fonts. Copy them to a USB flash drive, then into any folder in your Home area in Linux Mint.



STEP 9 Now locate the font you want to include in Writer, Calibri for example, and double left-click. With the Font window open, click on the Install button. Exit from Writer and reopen it via the Menu once more.



STEP 10 With Writer now back open, from the Menu Bar click Tools > Options and select LibreOffice Writer > Basic Fonts (Western) from the available options. From the drop-down menu, choose Calibri as the Default and click OK.



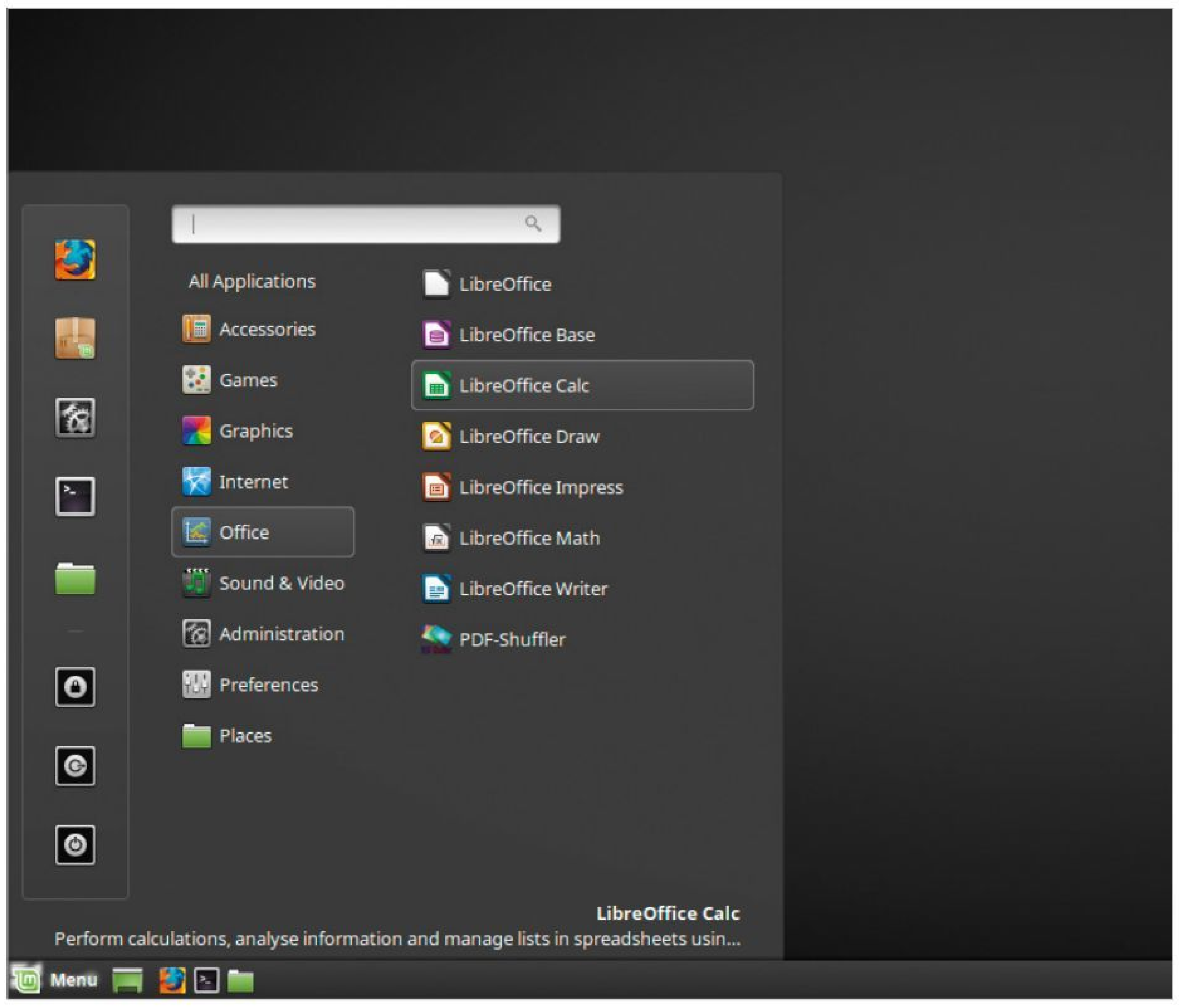
Exploring LibreOffice Calc

In the same way Microsoft Word is closely associated with documentation, Excel is the preferred spreadsheet application for most computers users. LibreOffice Calc though does just as good a job and it requires very little tweaking to make it 'feel' more like Excel.

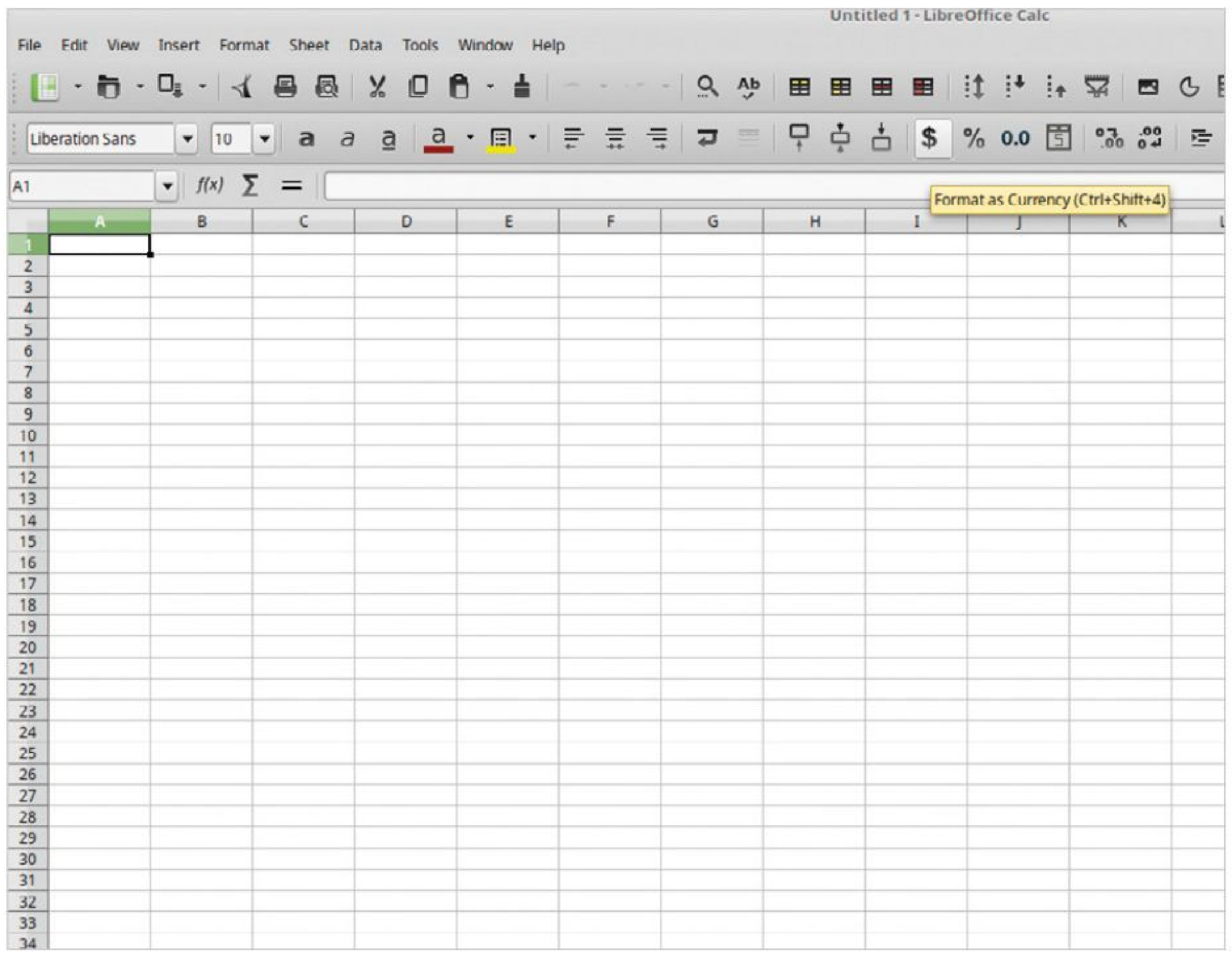
SPREADSHEET SUPERPOWERS

Whilst some complex macros and VB coding used in Excel spreadsheets may not translate well into Calc, just as they would with different versions of Excel, there's plenty this free app can accomplish.

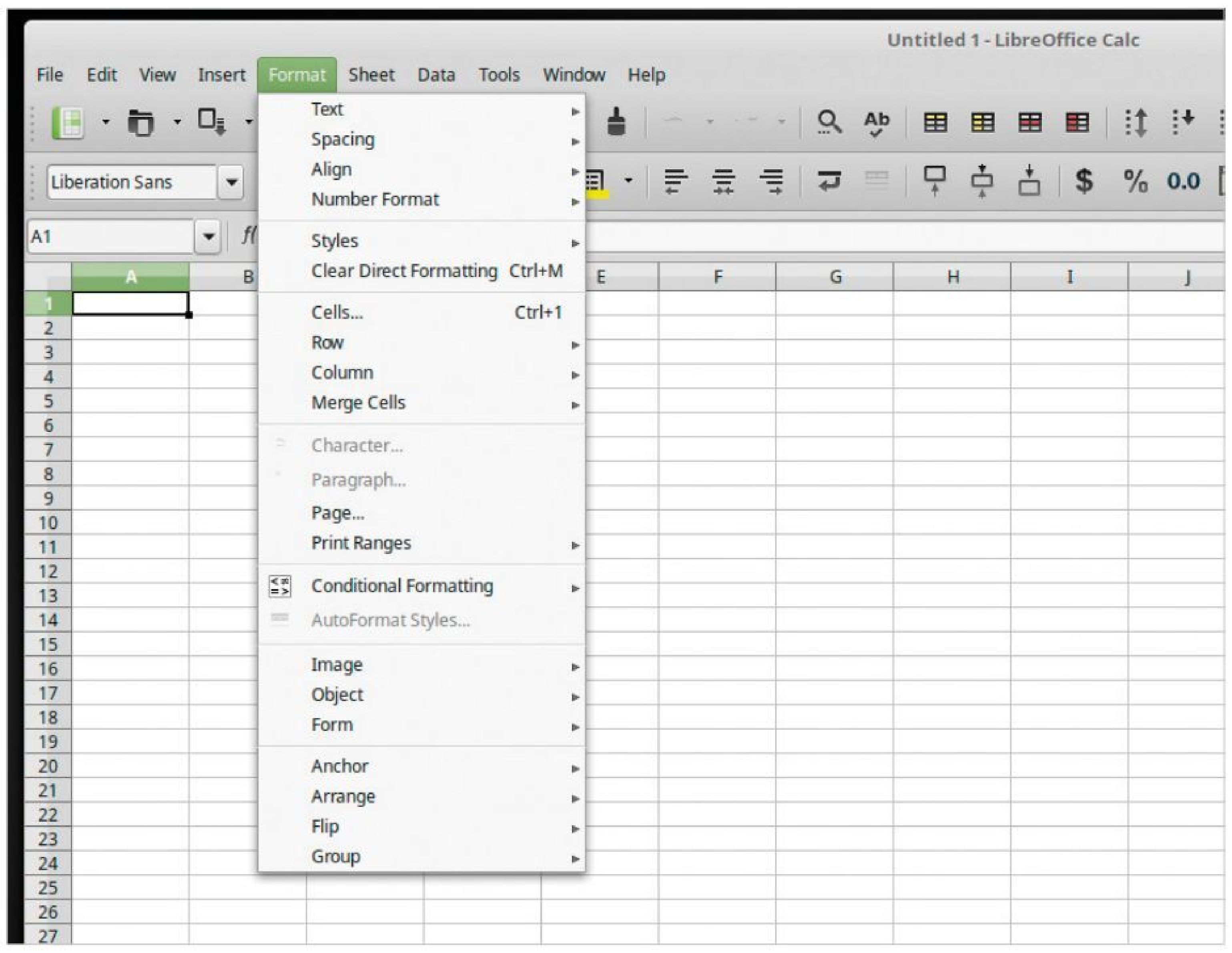
STEP 1 You can find LibreOffice Calc under the Office section from the Mint Menu. Click the icon to launch it.


All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
LibreOffice
LibreOffice Base
LibreOffice Calc
LibreOffice Draw
LibreOffice Impress
LibreOffice Math
LibreOffice Writer
PDF-Shuffler
LibreOffice Calc
Perform calculations, analyse information and manage lists in spreadsheets usin...
Menu

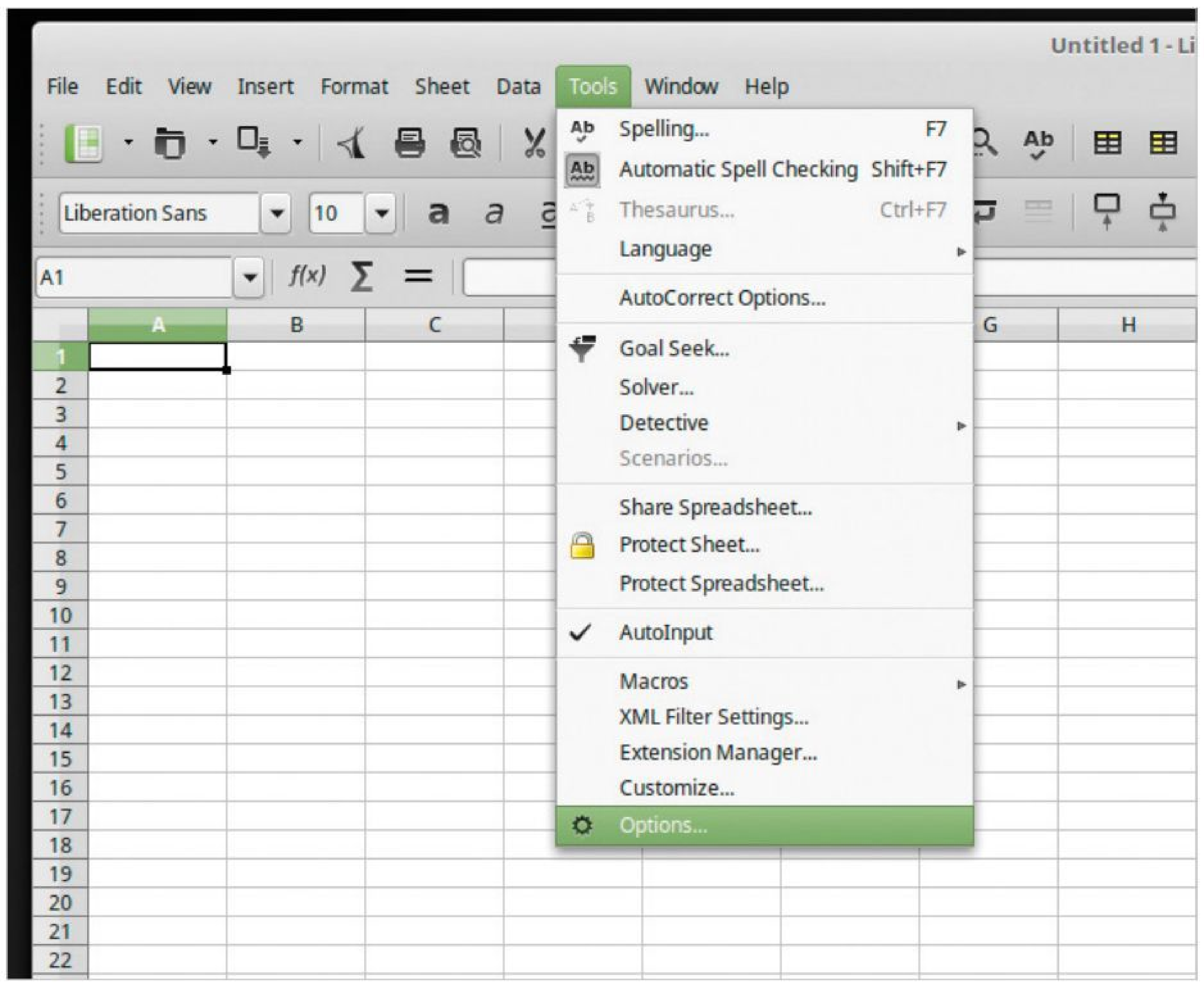
STEP 2 As previously with Writer, you can find an array of features along the ribbon bar at the top of the Calc window. These cover formatting, saving, rows and columns formatting, filters and the tools necessary to create a perfect spreadsheet.


Untitled 1 - LibreOffice Calc
File Edit View Insert Format Sheet Data Tools Window Help
Liberation Sans
10
Format as Currency (Ctrl+Shift+4)
A1

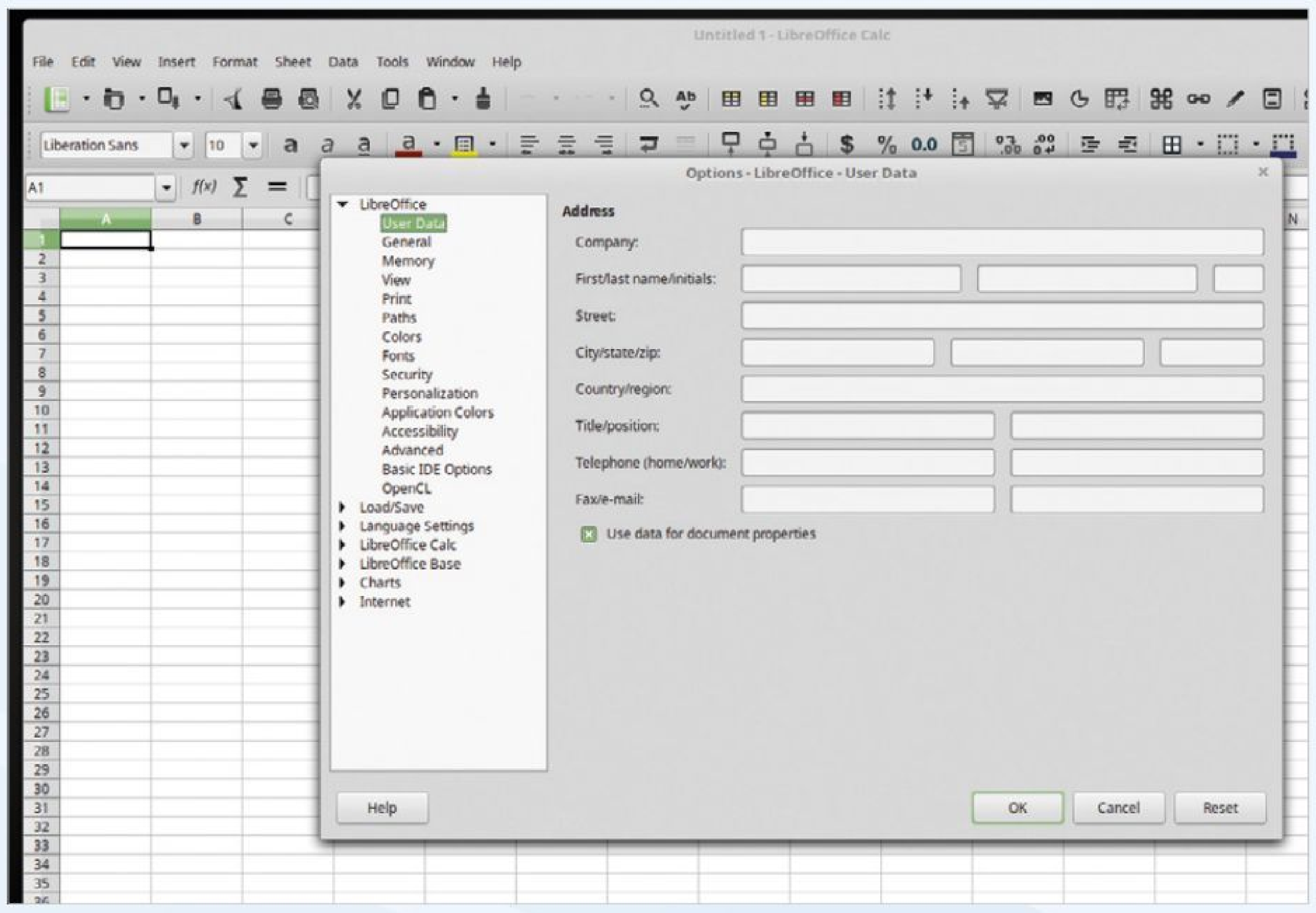
STEP 3 The options along the Menu Bar will be familiar with most Excel users. Here you can import, define and sort data as well as include objects, create graphs and define the style of the application and the spreadsheet you're working on.


Untitled 1 - LibreOffice Calc
File Edit View Insert Format Sheet Data Tools Window Help
Text
Spacing
Align
Number Format
Styles
Clear Direct Formatting Ctrl+M
Cells... Ctrl+1
Row
Column
Merge Cells
Character...
Paragraph...
Page...
Print Ranges
Conditional Formatting
AutoFormat Styles...
Image
Object
Form
Anchor
Arrange
Flip
Group

STEP 4 To further customise Calc, and to see what options there are available to tweak the app, go to the Menu Bar and click on Tools > Options.

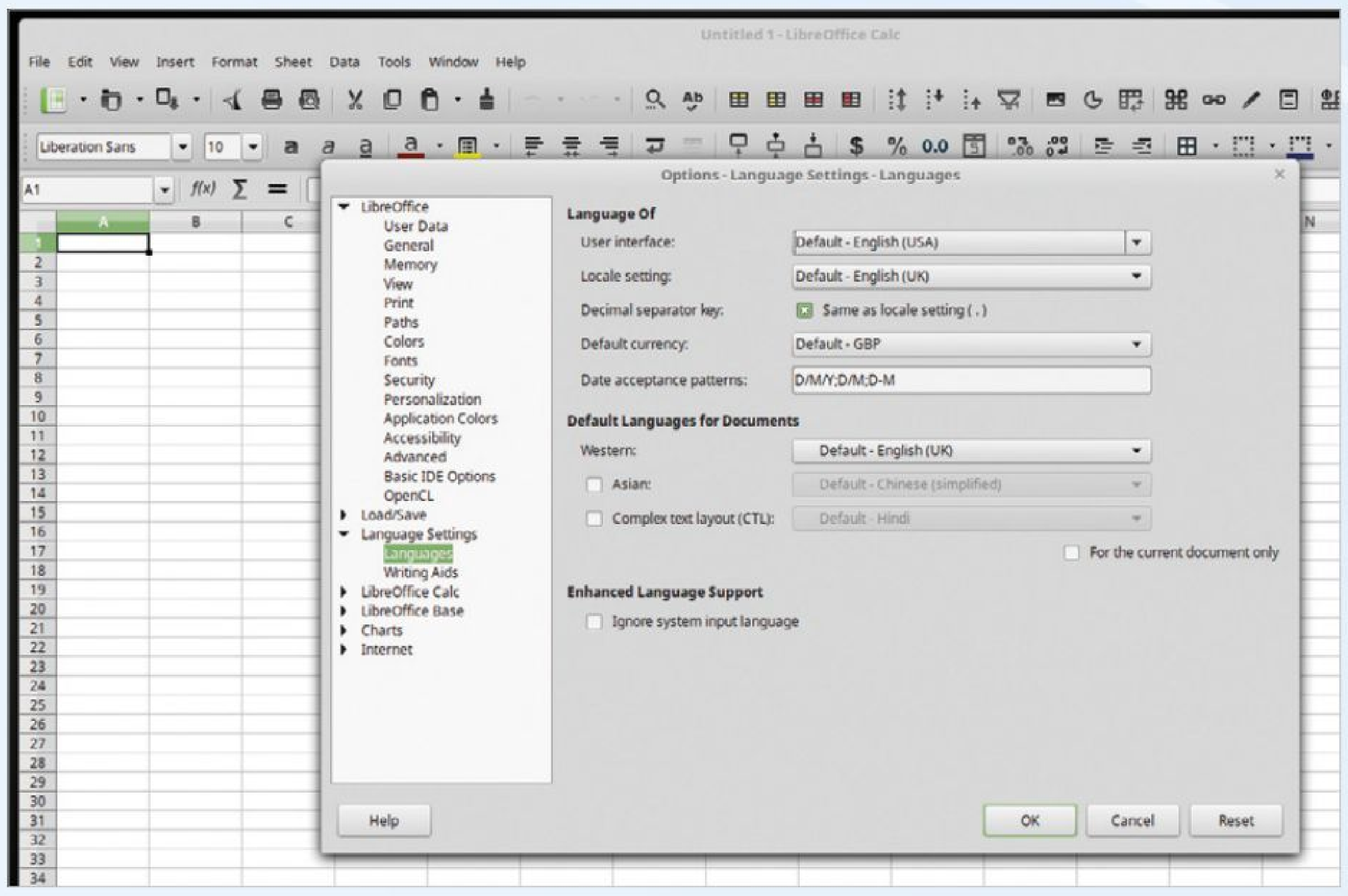

Untitled 1 - Li
File Edit View Insert Format Sheet Data Tools Window Help
Spelling... F7
Automatic Spell Checking Shift+F7
Thesaurus... Ctrl+F7
Language
AutoCorrect Options...
Goal Seek...
Solver...
Detective
Scenarios...
Share Spreadsheet...
Protect Sheet...
Protect Spreadsheet...
AutoInput
Macros
XML Filter Settings...
Extension Manager...
Customize...
Options...

STEP 5 If you haven't already, you can fill in the first option, User Data.


Untitled 1 - LibreOffice Calc
Options - LibreOffice - User Data
LibreOffice
User Data
General
Memory
View
Print
Paths
Colors
Fonts
Security
Personalization
Application Colors
Accessibility
Advanced
Basic IDE Options
OpenCL
Load/Save
Language Settings
LibreOffice Calc
LibreOffice Base
Charts
Internet
Help
OK
Cancel
Reset

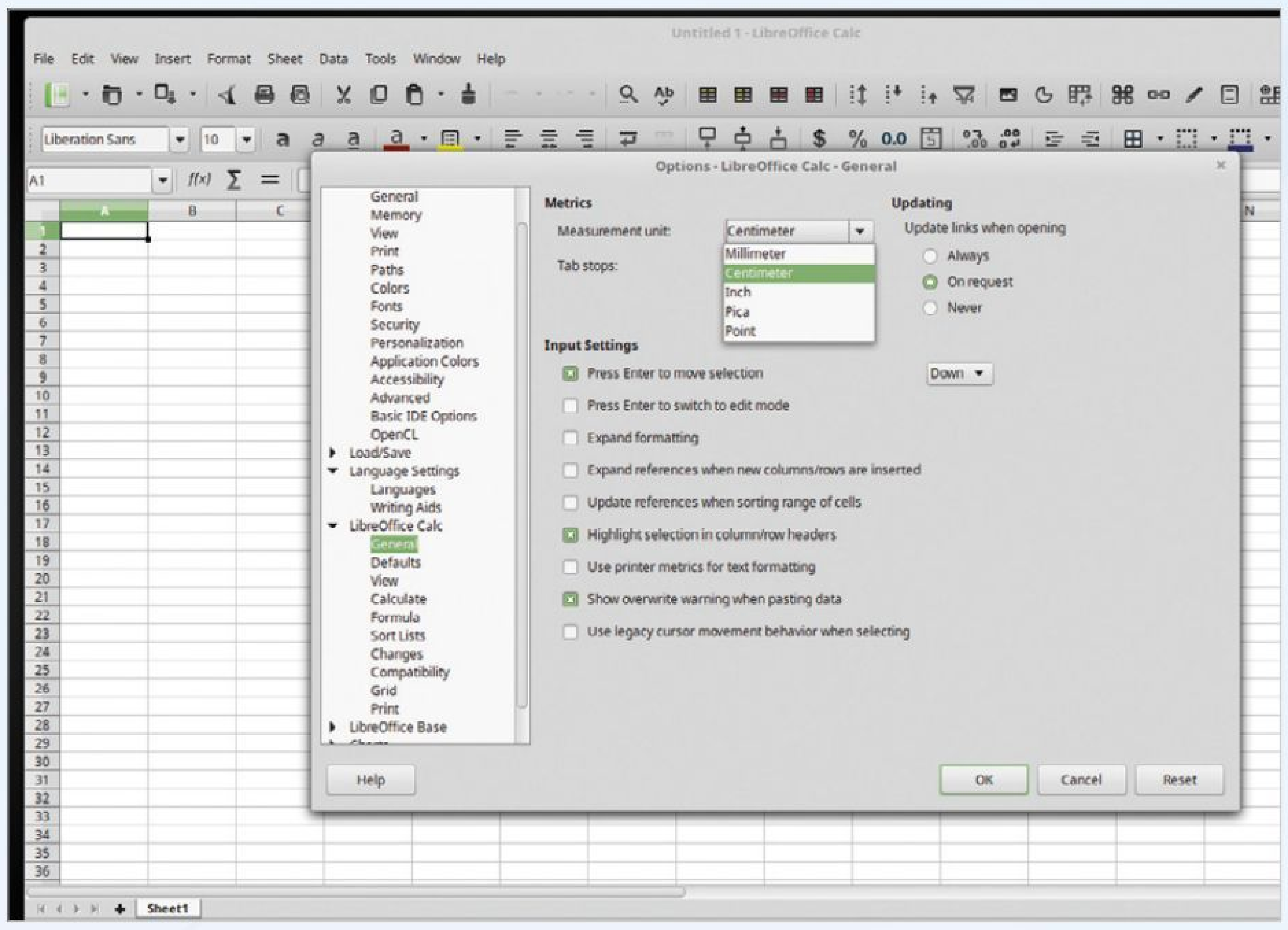
Address
Company:
First/last name/initials:
Street:
City/state/zip:
Country/region:
Title/position:
Telephone (home/work):
Fax/e-mail:
☒ Use data for document properties

STEP 6 As with Writer, it's worth checking that you have the correct language input before you start working. In the Options window, under the Language Settings section, you can alter the default language and currency used.


Untitled 1 - LibreOffice Calc
Options - Language Settings - Languages
LibreOffice
Load/Save
Language Settings
Languages
Writing Aids
LibreOffice Calc
LibreOffice Base
Charts
Internet
Help
OK
Cancel
Reset

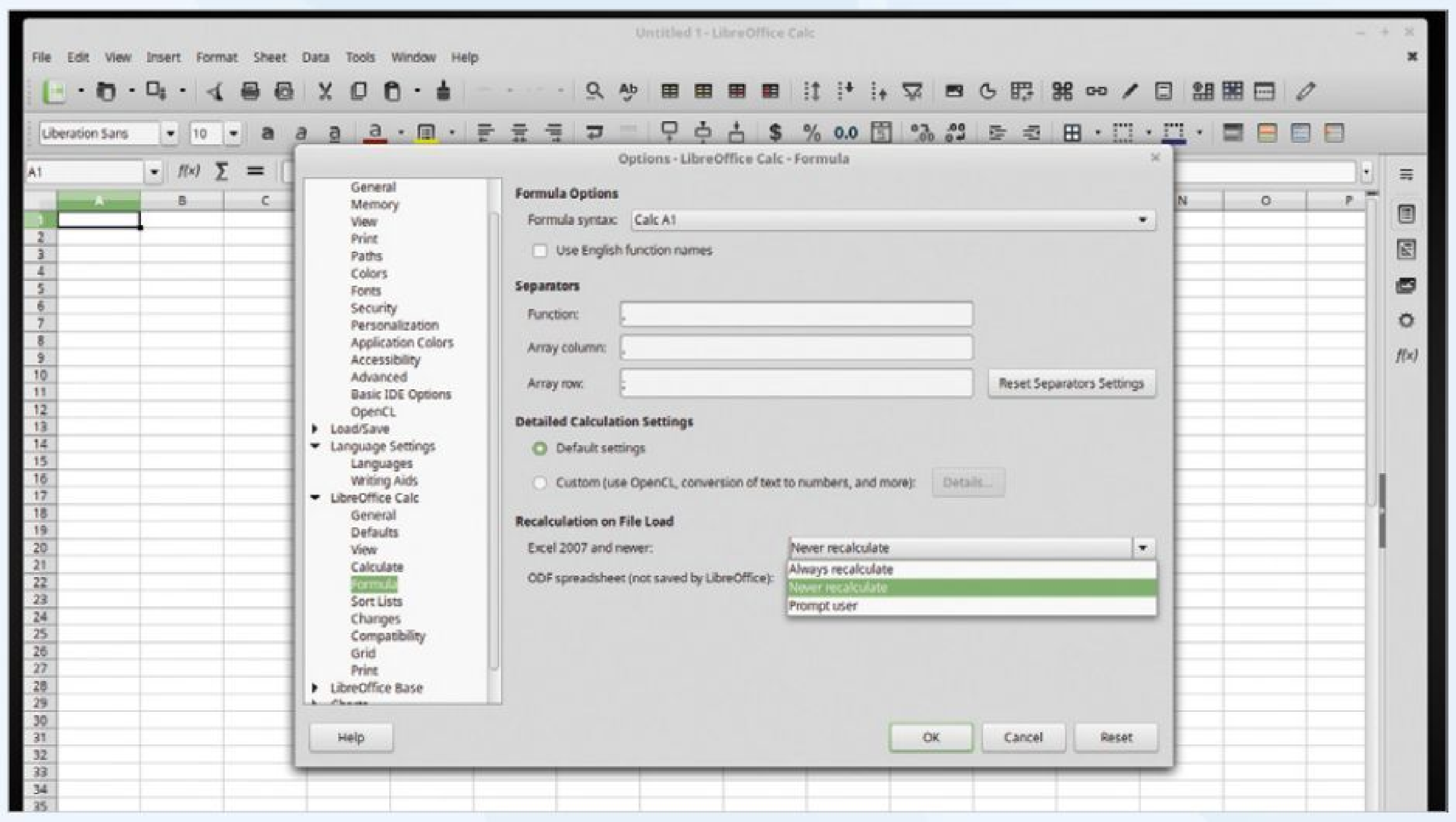
Language Of
User interface: Default - English (USA)
Locale setting: Default - English (UK)
Decimal separator key: ☒ Same as locale setting (.)
Default currency: Default - GBP
Date acceptance patterns: D/M/Y;D/M;D-M
Default Languages for Documents
Western: Default - English (UK)
☐ Asian: Default - Chinese (simplified)
☐ Complex text layout (CTL): Default - Hindi
☐ For the current document only
Enhanced Language Support
☐ Ignore system input language

STEP 7 LibreOffice Calc uses various measurement units as default. Instead of using Centimetres you could use inches, for example. To alter the default settings click on General under the LibreOffice Calc section in Options and change the Metrics.


Untitled 1 - LibreOffice Calc
Options - LibreOffice Calc - General
LibreOffice Calc
General
Defaults
View
Calculate
Formula
Sort Lists
Changes
Compatibility
Grid
Print
LibreOffice Base
Millimeter
Centimeter
Inch
Pica
Point
Help
OK
Cancel
Reset
Sheet1

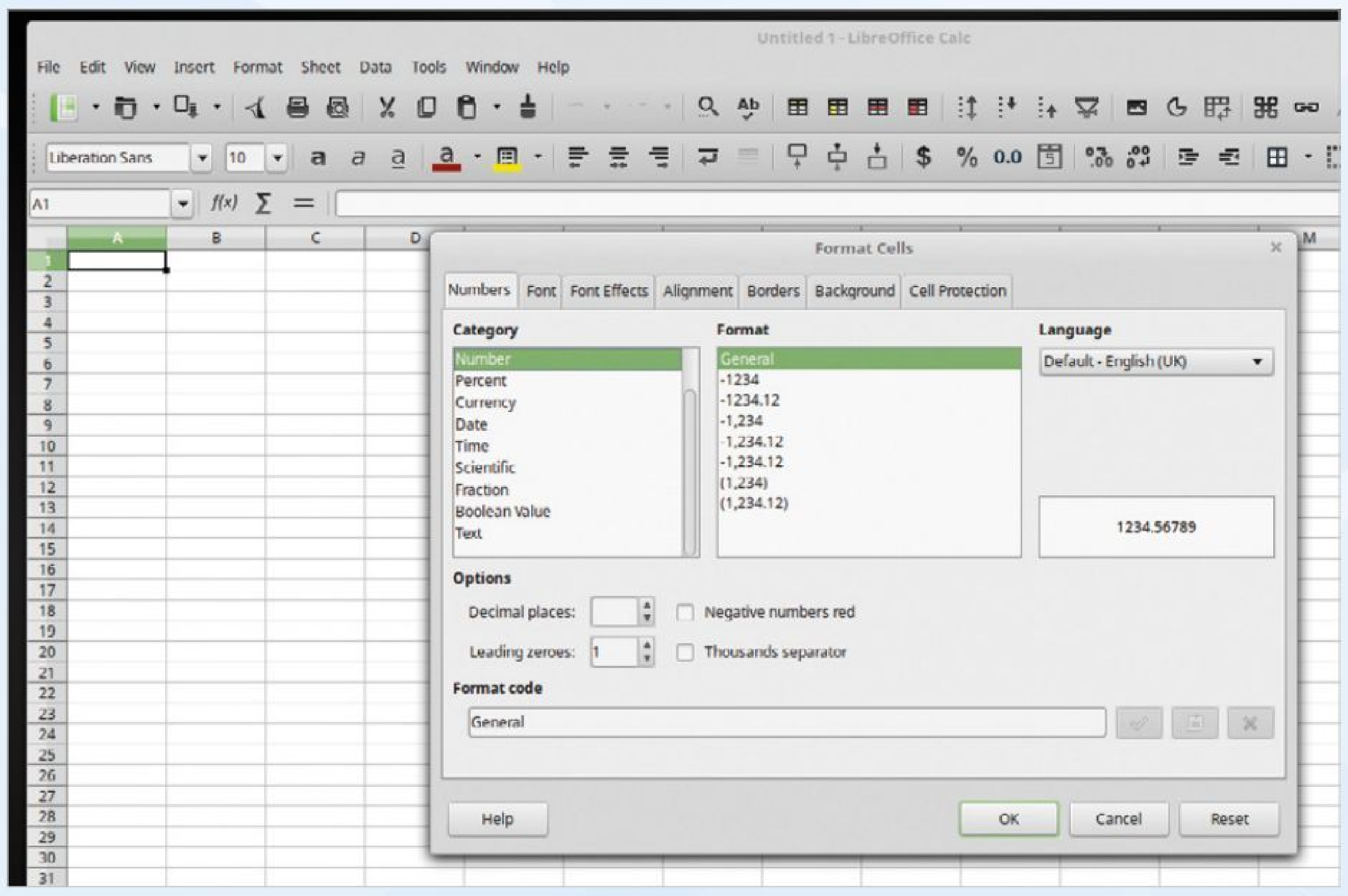
Metrics
Measurement unit: Centimeter
Tab stops:
Updating
Update links when opening
○ Always
● On request
○ Never
Input Settings
☒ Press Enter to move selection Down
☐ Press Enter to switch to edit mode
☐ Expand formatting
☐ Expand references when new columns/rows are inserted
☐ Update references when sorting range of cells
☒ Highlight selection in column/row headers
☐ Use printer metrics for text formatting
☒ Show overwrite warning when pasting data
☐ Use legacy cursor movement behavior when selecting

STEP 8 If you're working on a spreadsheet that was previously created with MS Excel, and there are numerous formulae inherent to it, it might be worth checking out the Formula option under the LibreOffice Calc section. In here you have the option to recalculate any previous formula on loading the spreadsheet.


Untitled 1 - LibreOffice Calc
Options - LibreOffice Calc - Formula
Reset Separators Settings
Details...
Always recalculate
Never recalculate
Prompt user
Help
OK
Cancel
Reset

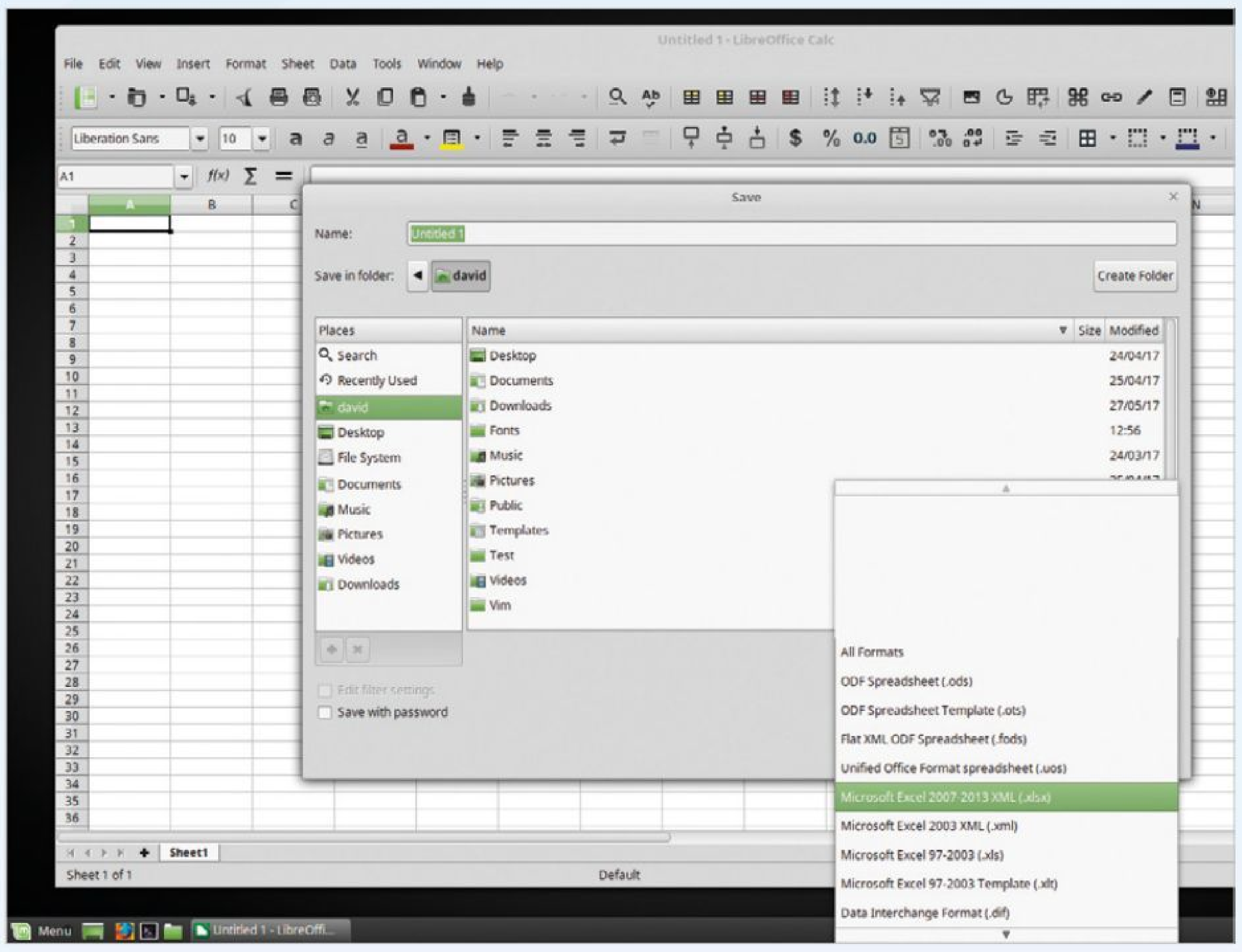
Formula Options
Formula syntax: Calc A1
☐ Use English function names
Separators
Function: ;
Array column: ;
Array row: |
Detailed Calculation Settings
● Default settings
○ Custom (use OpenCL, conversion of text to numbers, and more):
Recalculation on File Load
Excel 2007 and newer: Never recalculate
ODF spreadsheet (not saved by LibreOffice):

STEP 9 For cell-specific formatting, notice that Calc works very much the same way as Excel. Right-click any cell, choose Format Cells and you have the options to alter number formats, fonts, effects, protection and so on.


Untitled 1 - LibreOffice Calc
Format Cells
Numbers
Font
Font Effects
Alignment
Borders
Background
Cell Protection
Help
OK
Cancel
Reset

Category: Number
Percent
Currency
Date
Time
Scientific
Fraction
Boolean Value
Text
Format: General
-1234
-1234.12
-1,234
-1,234.12
-1,234.12
(1,234)
(1,234.12)
Language: Default - English (UK)
1234.56789
Options
Decimal places:
☐ Negative numbers red
Leading zeroes: 1
☐ Thousands separator
Format code: General

STEP 10 Finally, to keep the finished spreadsheet compatible with Excel, click on File > Save As and in the All Formats drop-down box choose the appropriate Excel version file format.


Untitled 1 - LibreOffice Calc
Save
Create Folder
Places
Search
Recently Used
david
Desktop
File System
Documents
Music
Pictures
Videos
Downloads
Edit filter settings
Save with password
Sheet1
Default
Menu

Name: Untitled 1
Save in folder: david

Name	Size	Modified
Desktop		24/04/17
Documents		25/04/17
Downloads		27/05/17
Fonts		12:56
Music		24/03/17
Pictures		
Public		
Templates		
Test		
Videos		
Vim		

All Formats
ODF Spreadsheet (.ods)
ODF Spreadsheet Template (.ots)
Flat XML ODF Spreadsheet (.fods)
Unified Office Format spreadsheet (.uos)
Microsoft Excel 2007-2013 XML (.xlsx)
Microsoft Excel 2003 XML (.xml)
Microsoft Excel 97-2003 (.xls)
Microsoft Excel 97-2003 Template (.xlt)
Data Interchange Format (.dif)

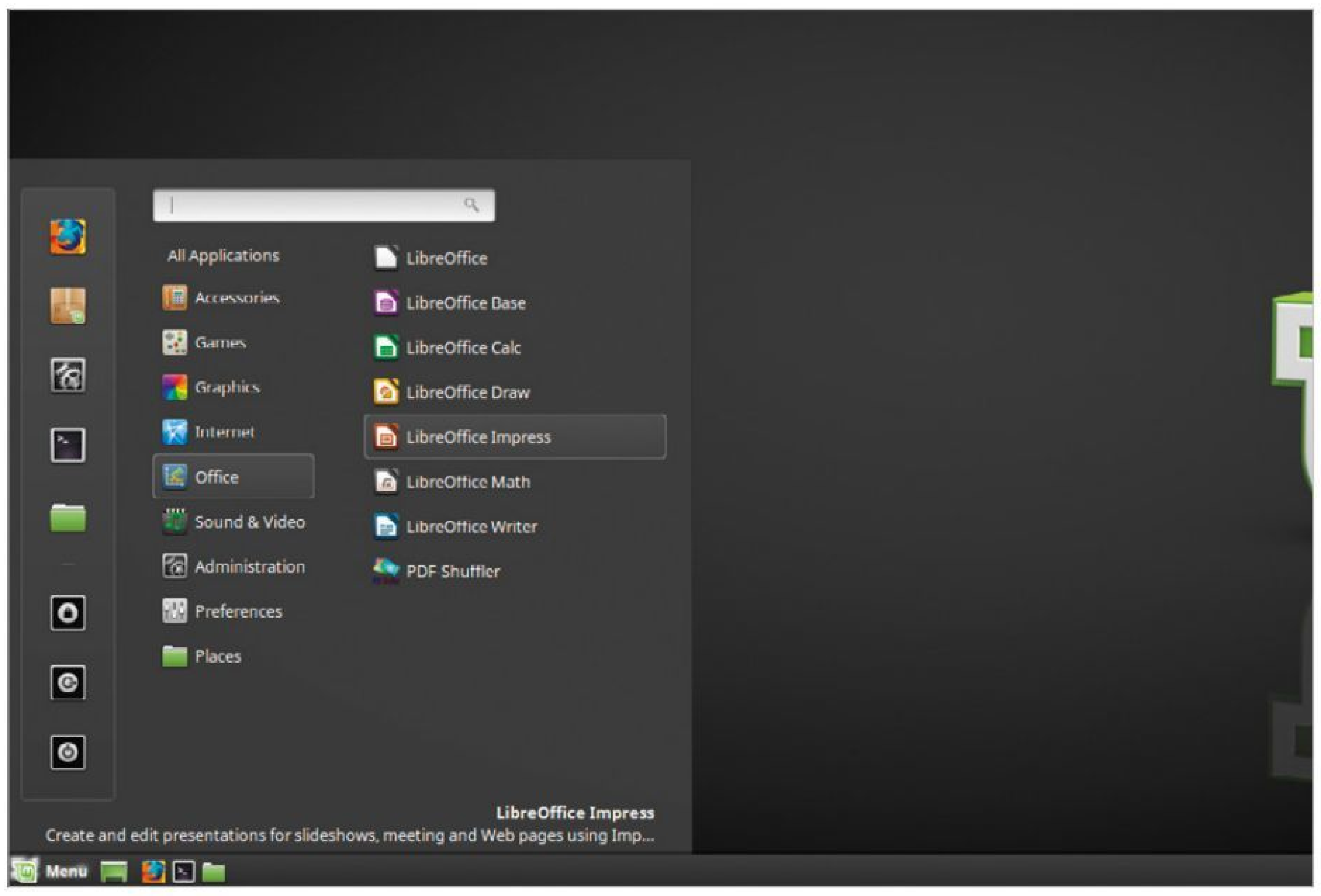
Exploring LibreOffice Impress

Microsoft PowerPoint may well be the bane of the office meeting but you can't fault its impact in business. LibreOffice Impress is the PowerPoint of Linux Mint and it's just as powerful as Microsoft's own contribution.

DEATH BY POWERPOINT

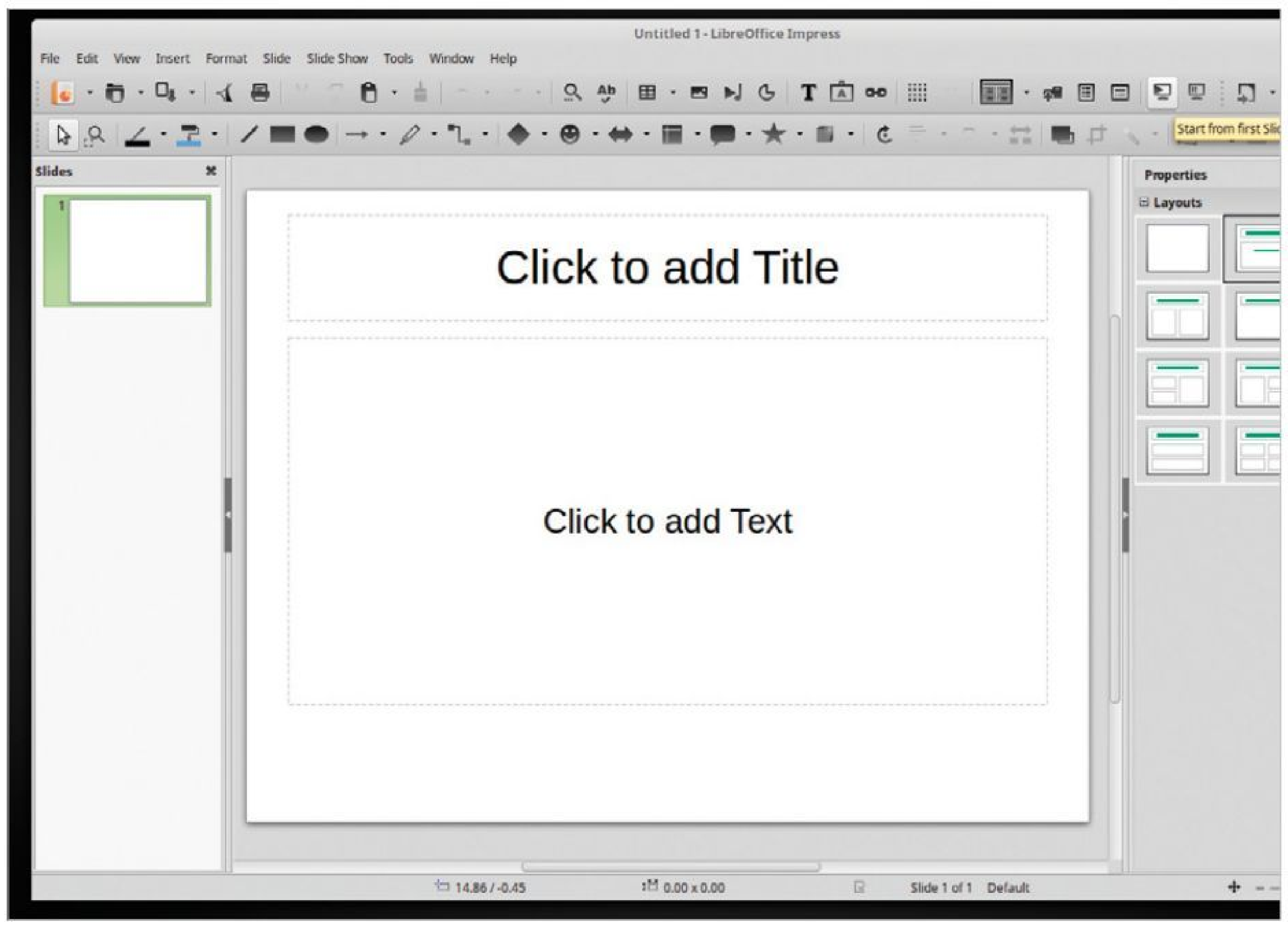
PowerPoint may be the butt of many jokes but it's a powerful piece of software. Impress is as capable and there's plenty to get your teeth into.

STEP 1 You can find LibreOffice Impress in the Mint Menu, under the Office heading. Alternatively, you can enter Impress into the search bar.



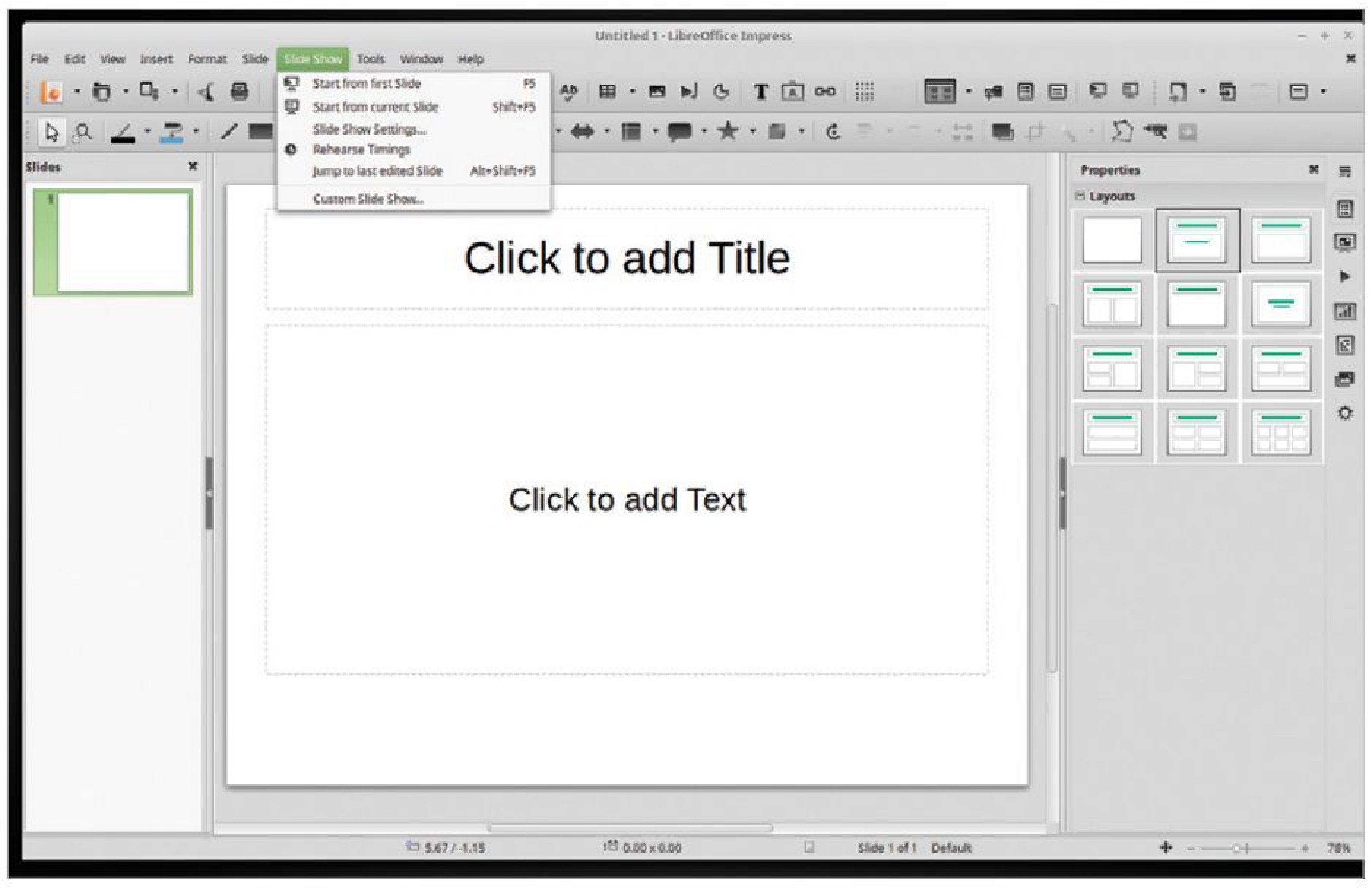
All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
LibreOffice
LibreOffice Base
LibreOffice Calc
LibreOffice Draw
LibreOffice Impress
LibreOffice Math
LibreOffice Writer
PDF Shuffler
LibreOffice Impress
Create and edit presentations for slideshows, meeting and Web pages using Imp...
Menu

STEP 2 The ribbon bar along the top of the Impress window will allow you to save, print, import images and video, play the presentation, open draw functions, and add shapes, flowcharts and so on



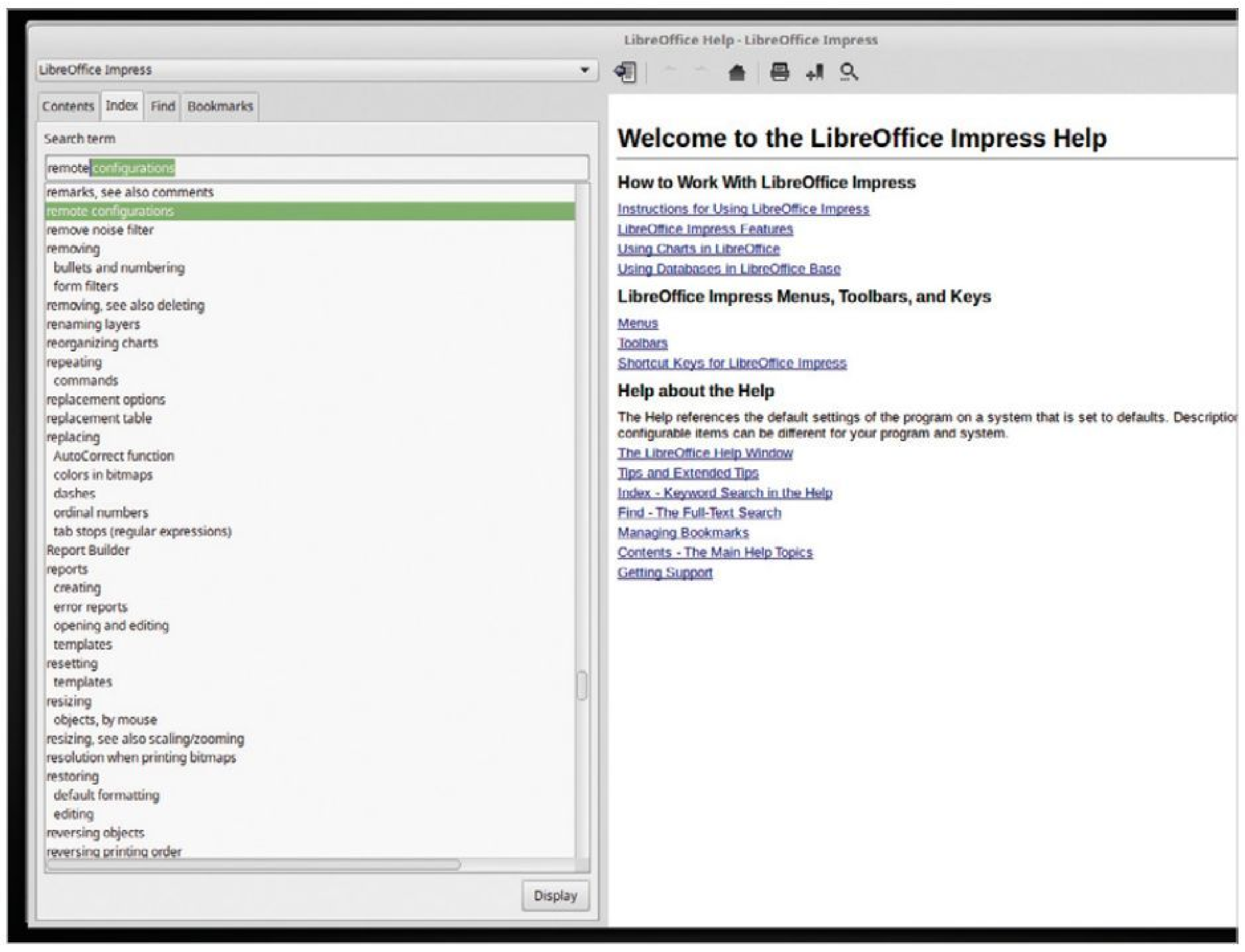
Untitled 1 - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Start from first Slide
Slides
Click to add Title
Click to add Text
Properties
Layouts
14.86 / -0.45
0.00 x 0.00
Slide 1 of 1 Default

STEP 3 The Menu Bar options, as with the other LibreOffice apps we've looked at, offer a wealth of options, most of which will already be familiar with PowerPoint users; this just goes to show how capable Impress is for free software.



Untitled 1 - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Start from first Slide F5
Start from current Slide Shift+F5
Slide Show Settings...
Rehearse Timings
Jump to last edited Slide Alt+Shift+F5
Custom Slide Show...
Slides
Click to add Title
Click to add Text
Properties
Layouts
5.67 / -1.15
0.00 x 0.00
Slide 1 of 1 Default
78%

STEP 4 If you get stuck with any of the options or features within Impress, as with the other LibreOffice apps, you can press F1 and search or read through the help manual.



LibreOffice Help - LibreOffice Impress
LibreOffice Impress
Contents
Index
Find
Bookmarks
Search term
remote configurations
remarks, see also comments
remote configurations
remove noise filter
removing
bullets and numbering
form filters
removing, see also deleting
renaming layers
reorganizing charts
repeating
commands
replacement options
replacement table
replacing
AutoCorrect function
colors in bitmaps
dashes
ordinal numbers
tab stops (regular expressions)
Report Builder
reports
creating
error reports
opening and editing
templates
resetting
templates
resizing
objects, by mouse
resizing, see also scaling/zooming
resolution when printing bitmaps
restoring
default formatting
editing
reversing objects
reversing printing order
Display

Welcome to the LibreOffice Impress Help

How to Work With LibreOffice Impress

Instructions for Using LibreOffice Impress

LibreOffice Impress Features

Using Charts in LibreOffice

Using Databases in LibreOffice Base

LibreOffice Impress Menus, Toolbars, and Keys

Menus

Toolbars

Shortcut Keys for LibreOffice Impress

Help about the Help

The Help references the default settings of the program on a system that is set to defaults. Descriptio configurable items can be different for your program and system.

The LibreOffice Help Window

Tips and Extended Tips

Index - Keyword Search in the Help

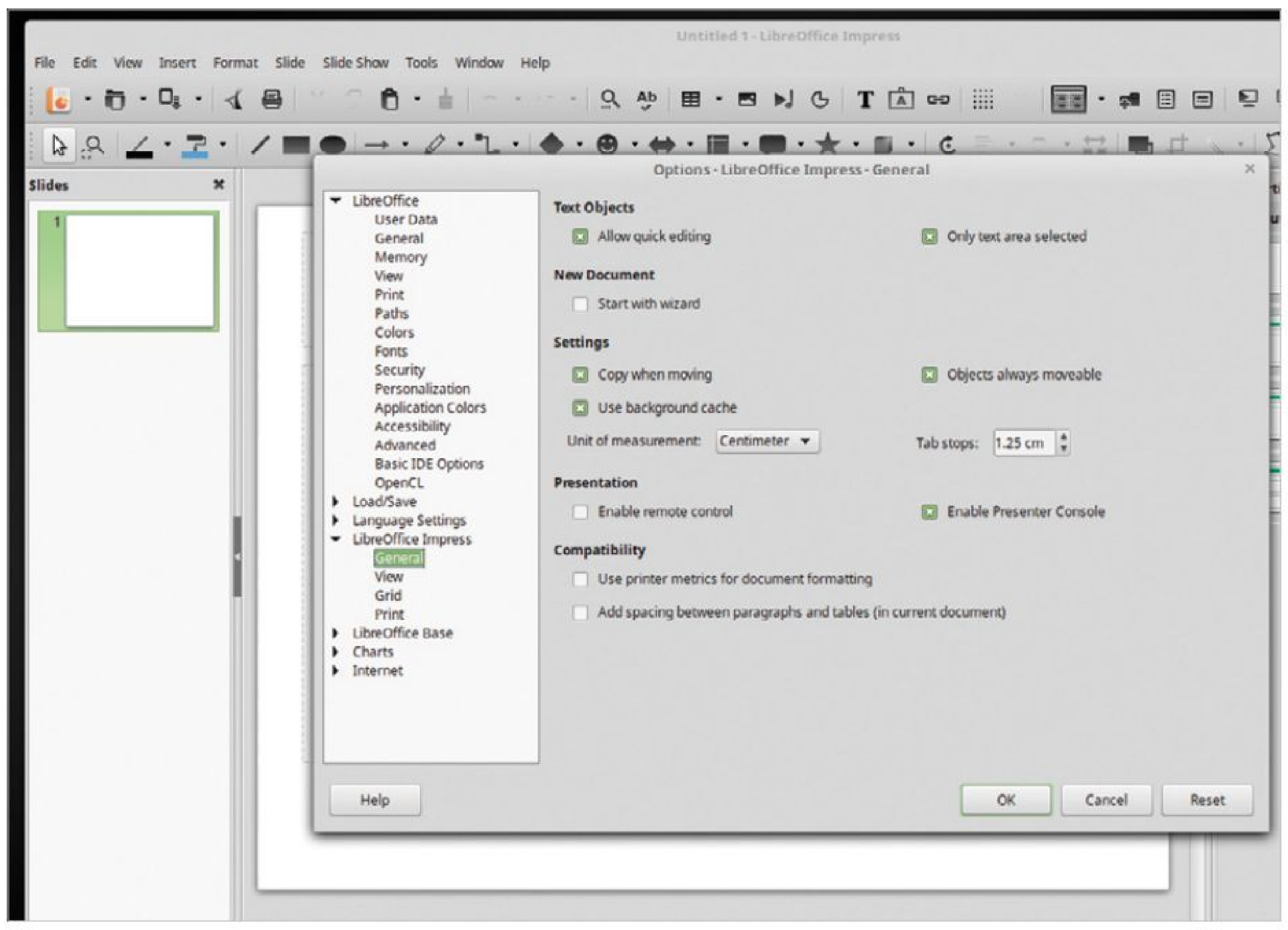
Find - The Full-Text Search

Managing Bookmarks

Contents - The Main Help Topics

Getting Support

STEP 5 For those with Bluetooth or USB pointers, you can use these devices with your Impress presentation by clicking on Tools > Options, then under the LibreOffice Impress section in General, click on the Enable Remote Control tick box.


Untitled 1 - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Slides
Help
OK
Cancel
Reset

Options - LibreOffice Impress - General

- LibreOffice
  - User Data
  - General
  - Memory
  - View
  - Print
  - Paths
  - Colors
  - Fonts
  - Security
  - Personalization
  - Application Colors
  - Accessibility
  - Advanced
  - Basic IDE Options
  - OpenCL
- Load/Save
- Language Settings
- LibreOffice Impress
  - General
  - View
  - Grid
  - Print
- LibreOffice Base
- Charts
- Internet

Text Objects
☒ Allow quick editing ☒ Only text area selected

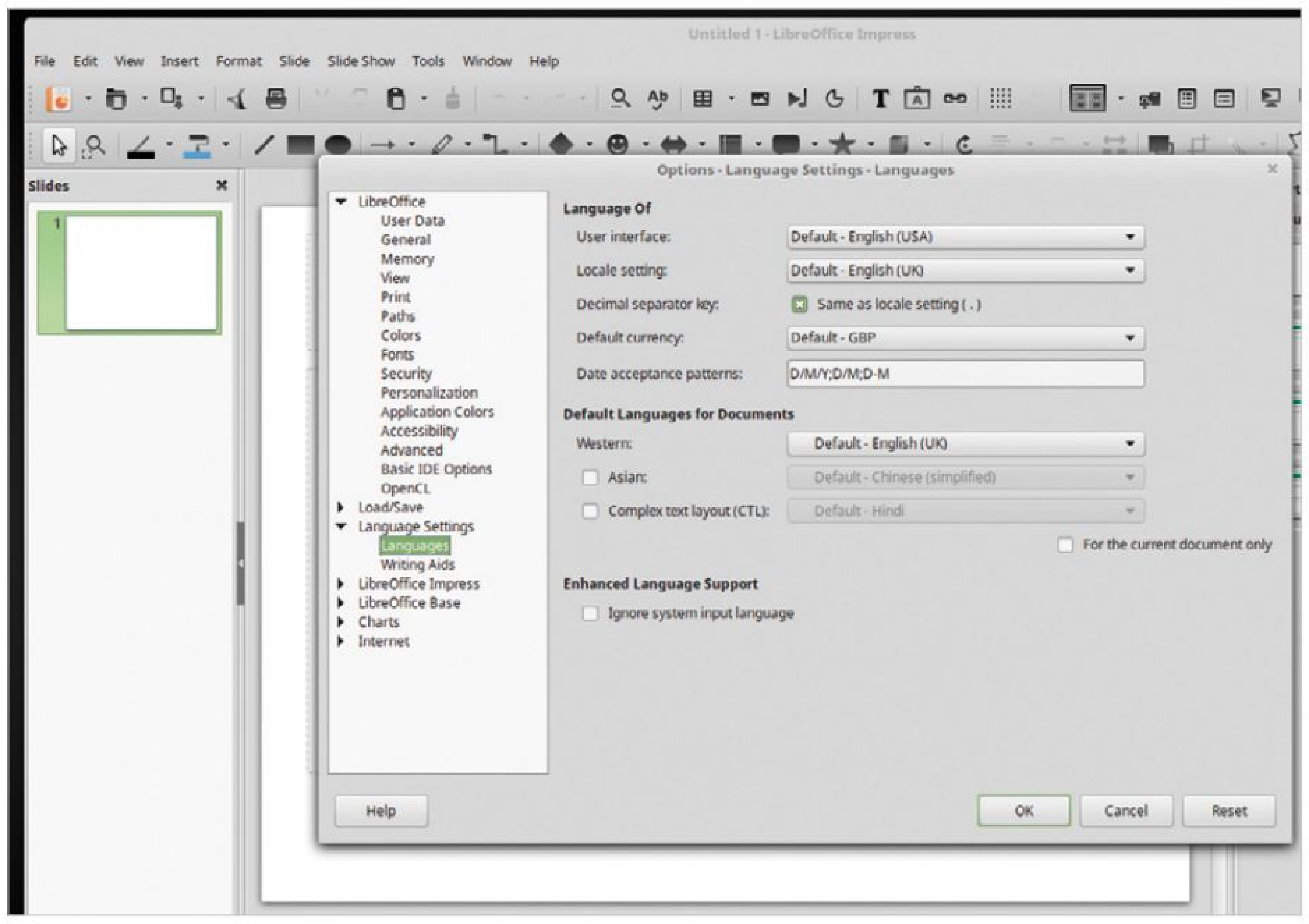
New Document
☐ Start with wizard

Settings
☒ Copy when moving ☒ Objects always moveable
☒ Use background cache
Unit of measurement: Centimeter Tab stops: 1.25 cm

Presentation
☐ Enable remote control ☒ Enable Presenter Console

Compatibility
☐ Use printer metrics for document formatting
☐ Add spacing between paragraphs and tables (in current document)

STEP 6 Just like before, if you haven't already, check that the default language is correct. You can find this under the Language Settings in the Options window.


Untitled 1 - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Slides
Help
OK
Cancel
Reset

Options - Language Settings - Languages

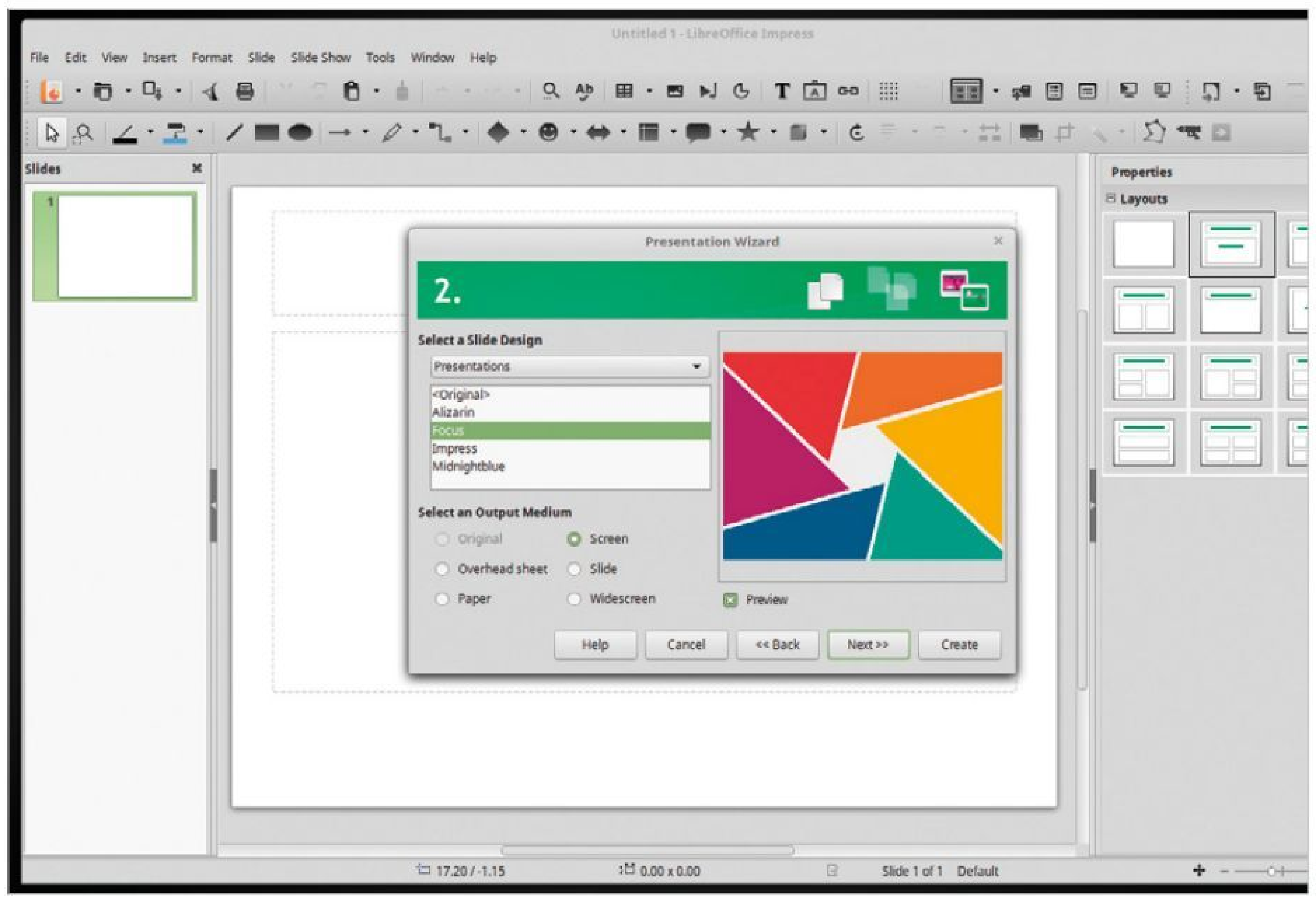
- LibreOffice
  - User Data
  - General
  - Memory
  - View
  - Print
  - Paths
  - Colors
  - Fonts
  - Security
  - Personalization
  - Application Colors
  - Accessibility
  - Advanced
  - Basic IDE Options
  - OpenCL
- Load/Save
- Language Settings
  - Languages
  - Writing Aids
- LibreOffice Impress
- LibreOffice Base
- Charts
- Internet

Language Of
User interface: Default - English (USA)
Locale setting: Default - English (UK)
Decimal separator key: ☒ Same as locale setting (.)
Default currency: Default - GBP
Date acceptance patterns: D/M/Y;D/M;D-M

Default Languages for Documents
Western: Default - English (UK)
☐ Asian: Default - Chinese (simplified)
☐ Complex text layout (CTL): Default - Hindi
☐ For the current document only

Enhanced Language Support
☐ Ignore system input language

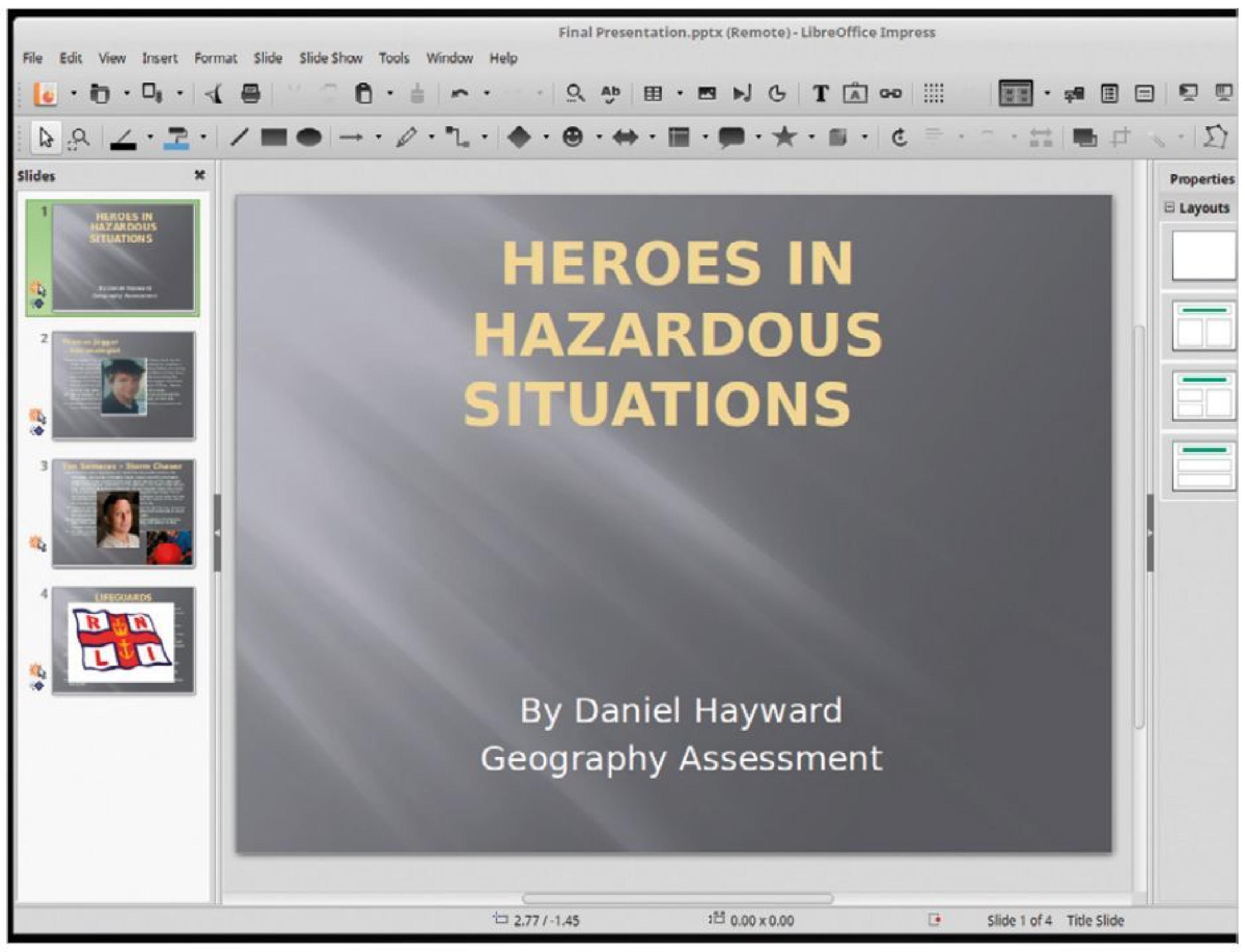
STEP 7 In the Menu Bar, under File > Wizards, you can find some presentation options. The Presentation Wizard will walk you through creating a superb looking Impress presentation.


Untitled 1 - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Slides
Properties
Layouts
Presentation Wizard
2.
Help
Cancel
<< Back
Next >>
Create
17.20 / -1.15
0.00 x 0.00
Slide 1 of 1 Default

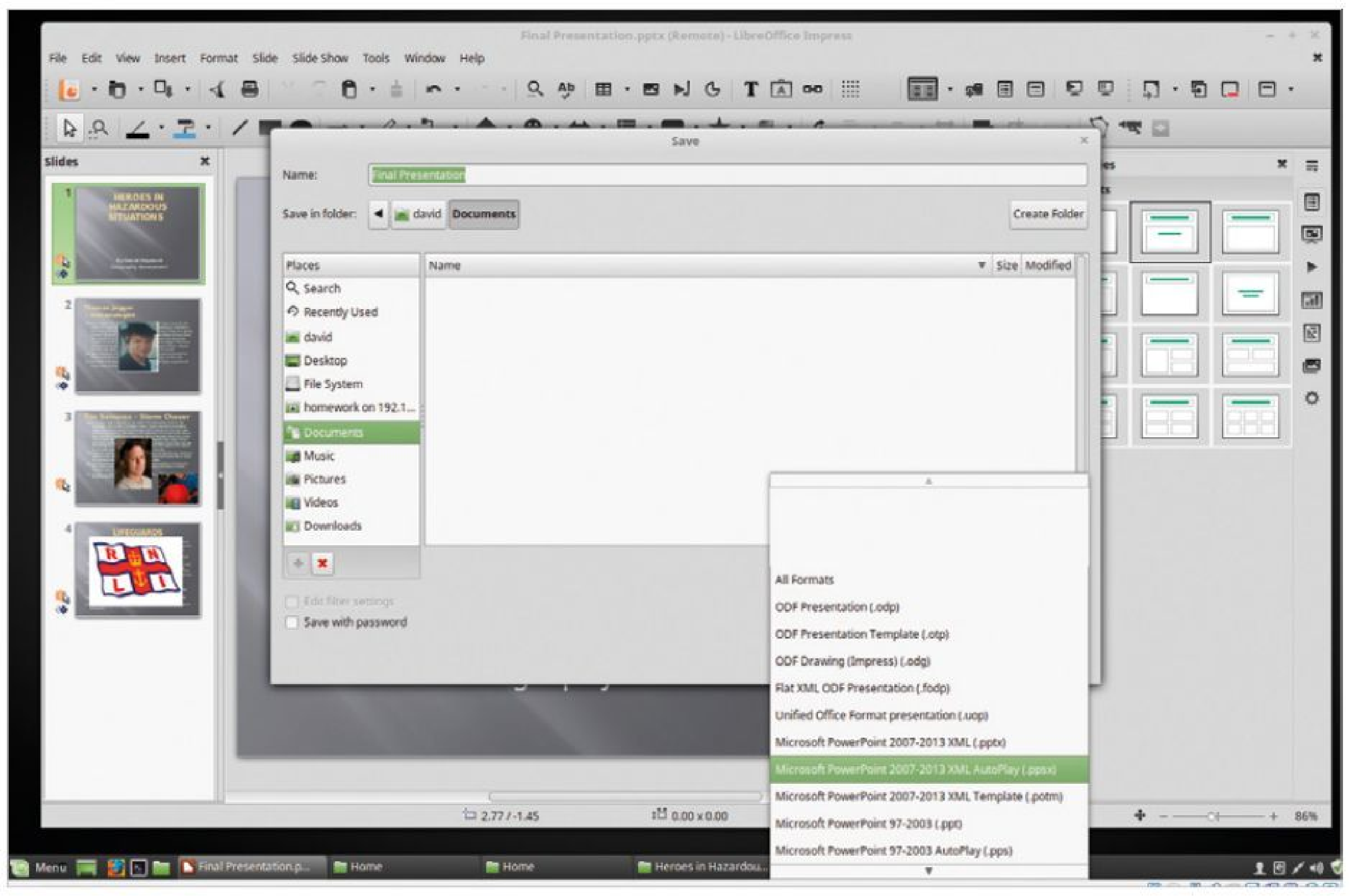
Select a Slide Design
Presentations
<Original>
Alizarin
Focus
Impress
Midnightblue

Select an Output Medium
○ Original ● Screen
○ Overhead sheet ○ Slide
○ Paper ○ Widescreen
☒ Preview

STEP 8 Students will find Impress can import MS PowerPoint presentations, even those with embedded videos, images and hyperlinks.


Final Presentation.pptx (Remote) - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Slides
Properties
Layouts
HEROES IN HAZARDOUS SITUATIONS
By Daniel Hayward
Geography Assessment
2.77 / -1.45
0.00 x 0.00
Slide 1 of 4 Title Slide

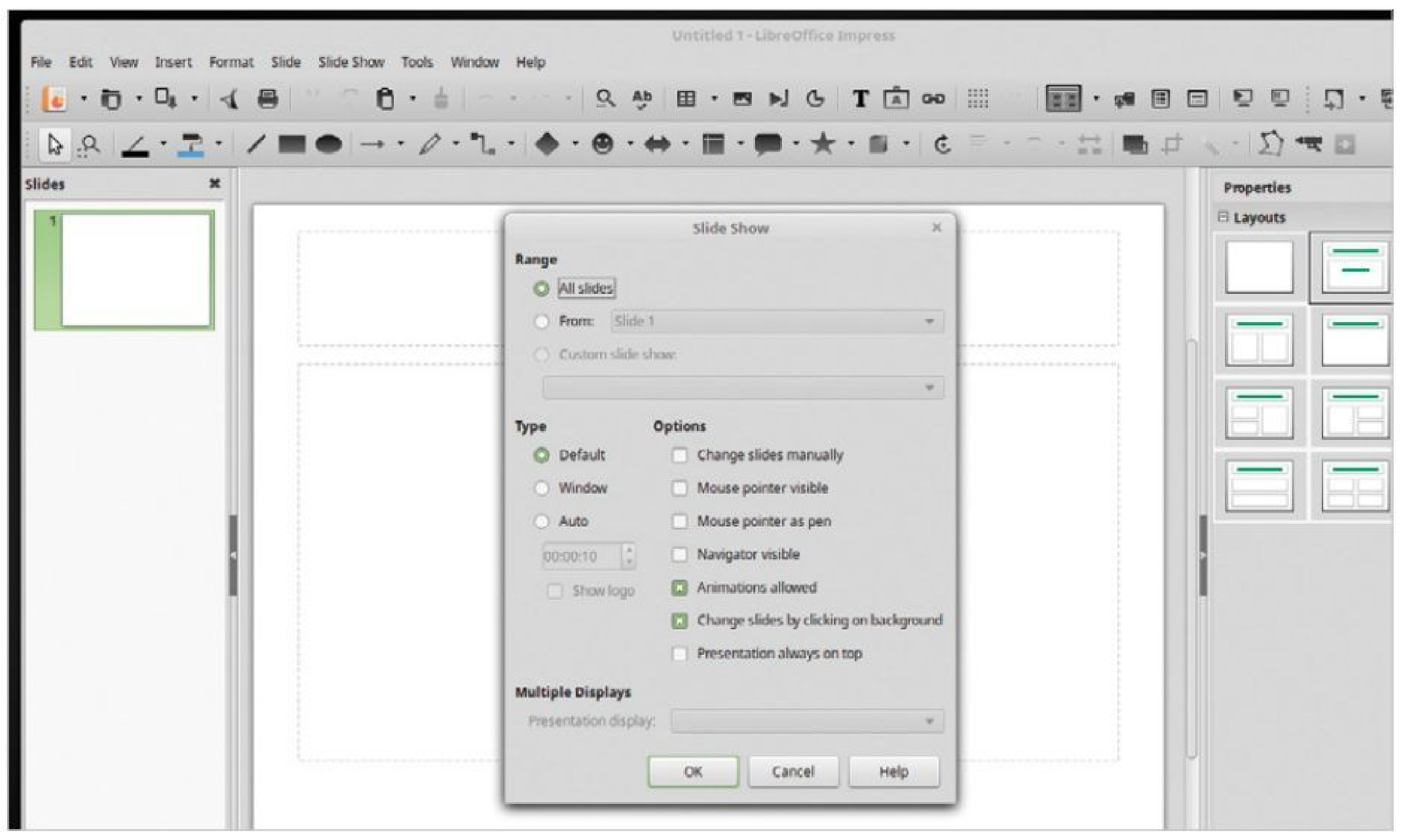
STEP 9 You can also save the presentation as an MS PowerPoint compatible file format by clicking on File > Save As and opening the All Formats drop-down box. Then choose the appropriate PowerPoint file format.


Final Presentation.pptx (Remote) - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Slides
Save
Create Folder
Places
Search
Recently Used
david
Desktop
File System
homework on 192.1...
Documents
Music
Pictures
Videos
Downloads
Name
Size
Modified
2.77 / -1.45
0.00 x 0.00
Menu
Final Presentation.p...
Home
Home
Heroes in Hazardou...

Name: Final Presentation
Save in folder: david Documents
☐ Edit filter settings
☐ Save with password

All Formats
ODF Presentation (.odp)
ODF Presentation Template (.otp)
ODF Drawing (Impress) (.odg)
Flat XML ODF Presentation (.fodp)
Unified Office Format presentation (.uop)
Microsoft PowerPoint 2007-2013 XML (.pptx)
Microsoft PowerPoint 2007-2013 XML AutoPlay (.ppsx)
Microsoft PowerPoint 2007-2013 XML Template (.potm)
Microsoft PowerPoint 97-2003 (.ppt)
Microsoft PowerPoint 97-2003 AutoPlay (.pps)

STEP 10 When you've created your presentation you can rehearse the timings and alter the slideshow parameters via the Menu Bar's Slide Show > Slide Show Settings. In here you can find options to change the range of slides used, presentation mode and multiple displays.


Untitled 1 - LibreOffice Impress
File Edit View Insert Format Slide Slide Show Tools Window Help
Slides
Properties
Layouts
Slide Show
OK
Cancel
Help

Range
● All slides
○ From: Slide 1
○ Custom slide show:

Type
● Default
○ Window
○ Auto
00:00:10
☐ Show logo

Options
☐ Change slides manually
☐ Mouse pointer visible
☐ Mouse pointer as pen
☐ Navigator visible
☒ Animations allowed
☒ Change slides by clicking on background
☐ Presentation always on top

Multiple Displays
Presentation display:

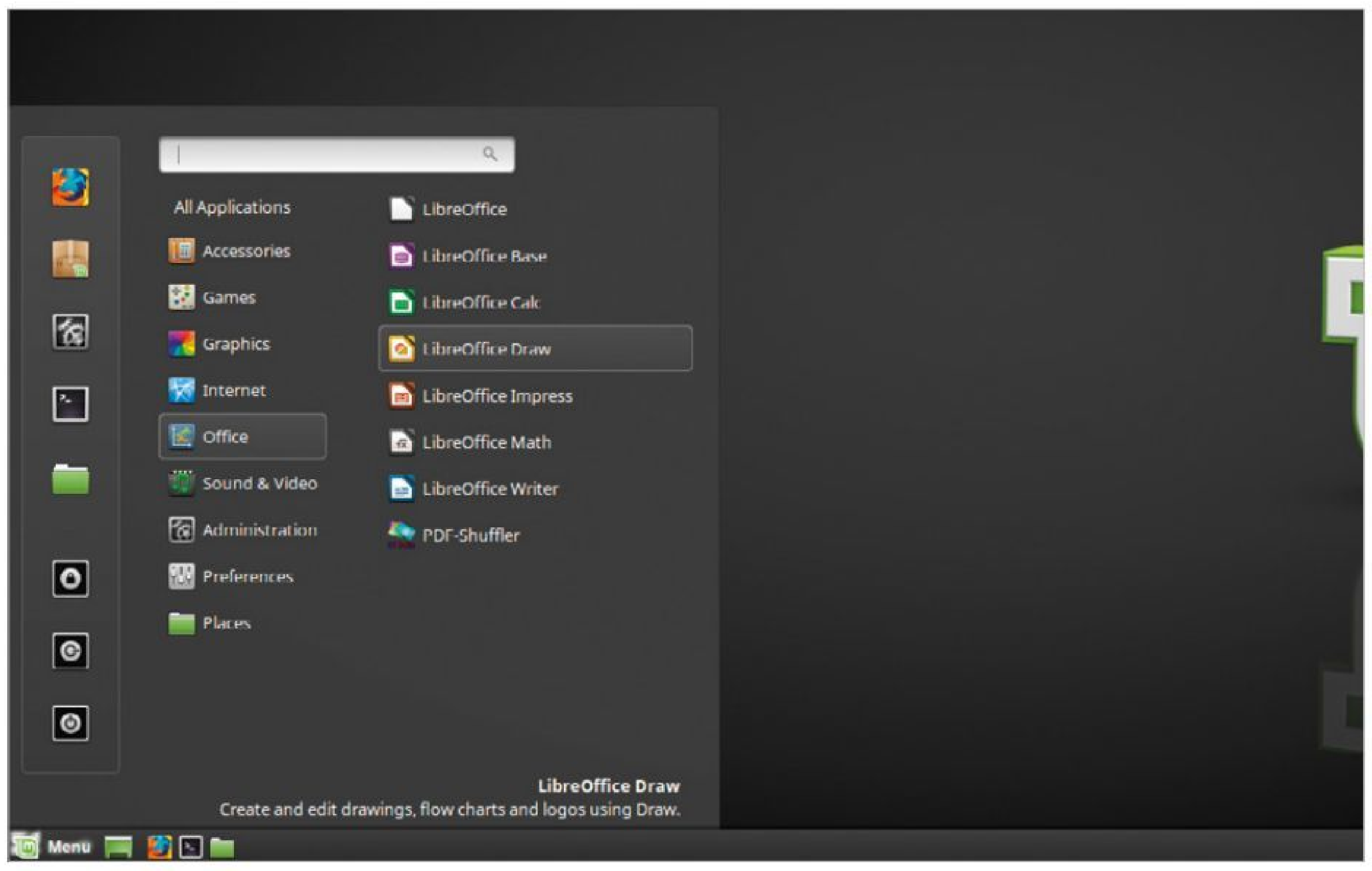
Exploring LibreOffice Draw

LibreOffice Draw is an incredibly powerful tool for those who want to produce stunning graphical presentations and diagrams. It has a maximum page size of 3000 x 3000mm and is remarkably simple to use.

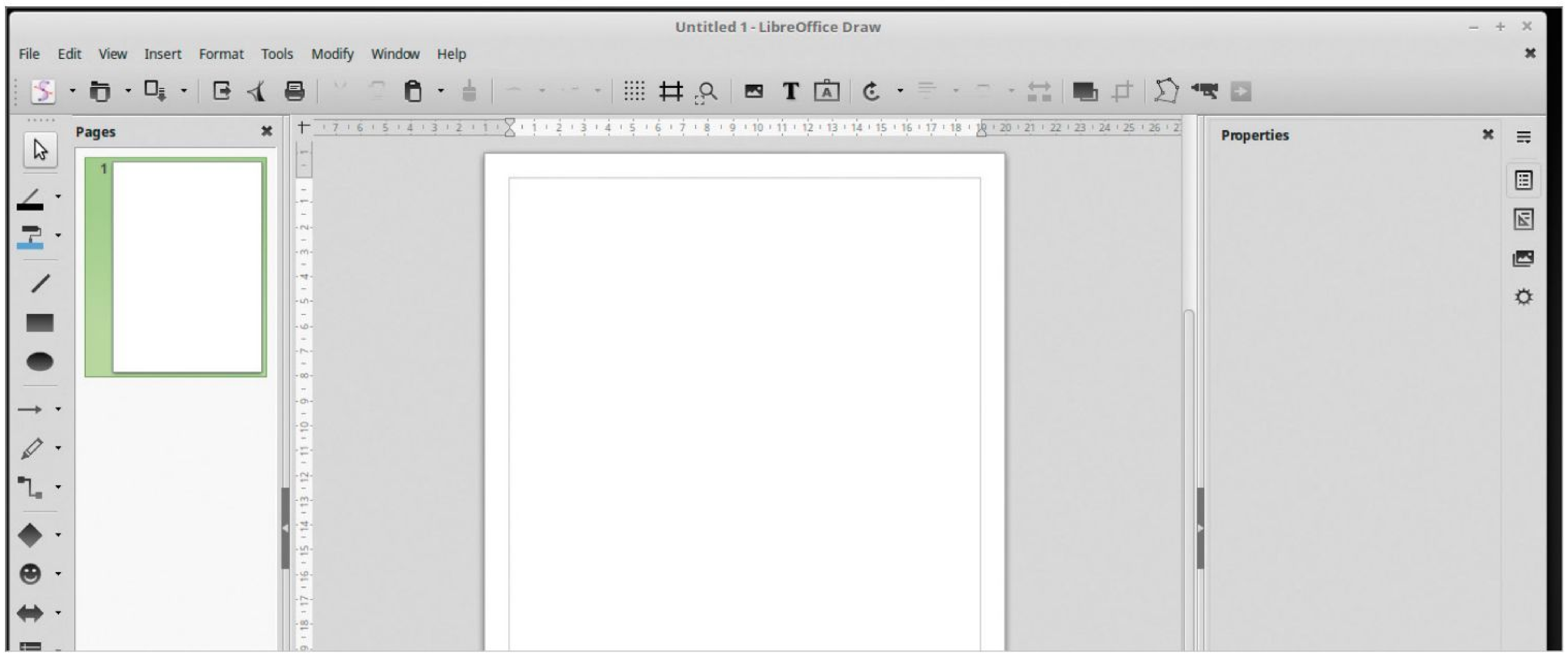
EYE-POPPING GRAPHICS

The LibreOffice Draw slogan is 'eye-popping graphics' and it's easy to see why. Despite being free, Draw offers the user a wealth of options and features.

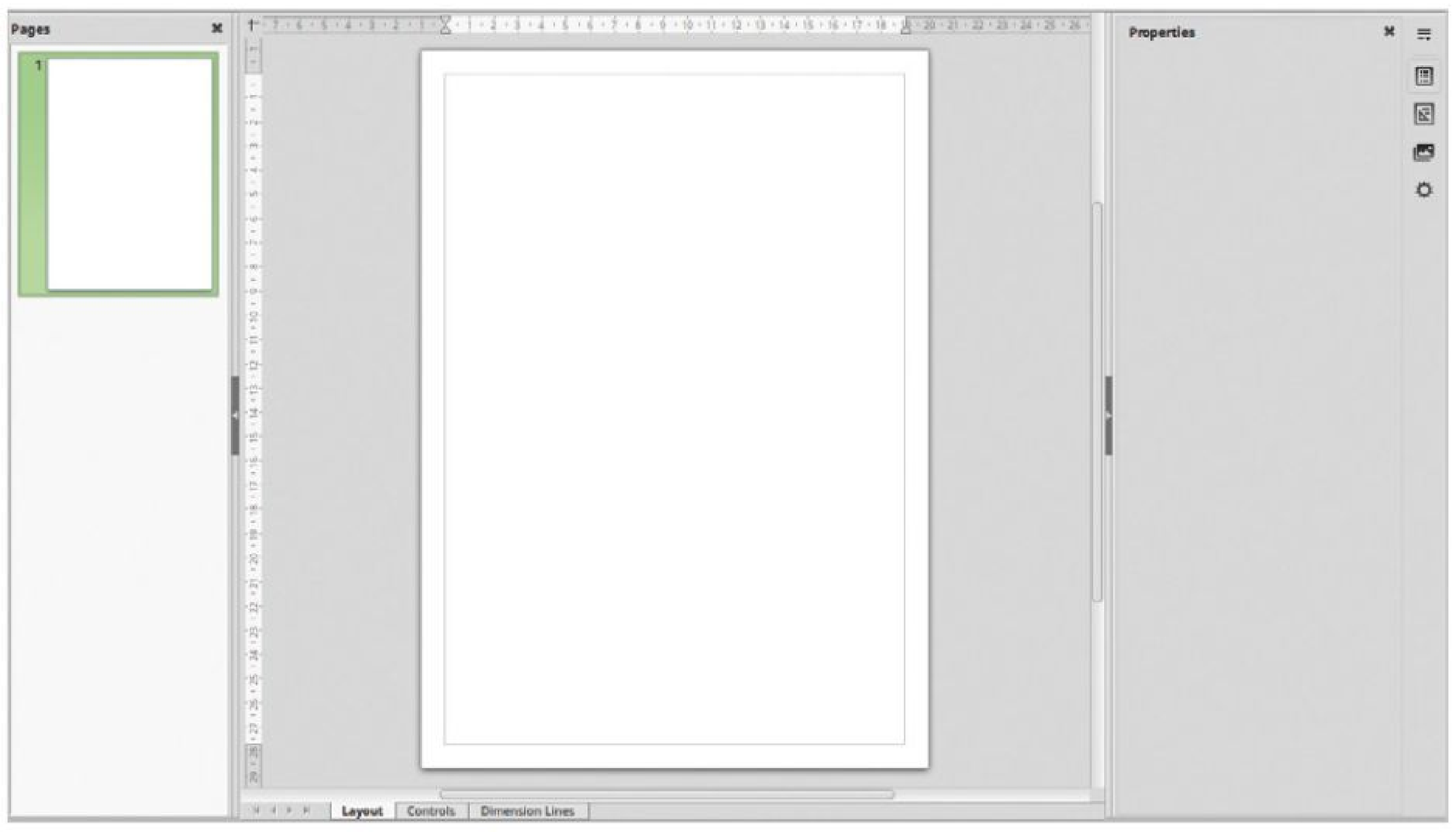
STEP 1 LibreOffice Draw can be found in the same Menu > Office location as the previous LibreOffice titles; or you can simply enter Draw into the search bar and click on the icon from the search results.


All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
LibreOffice
LibreOffice Base
LibreOffice Calc
LibreOffice Draw
LibreOffice Impress
LibreOffice Math
LibreOffice Writer
PDF-Shuffler
LibreOffice Draw
Create and edit drawings, flow charts and logos using Draw.
Menu

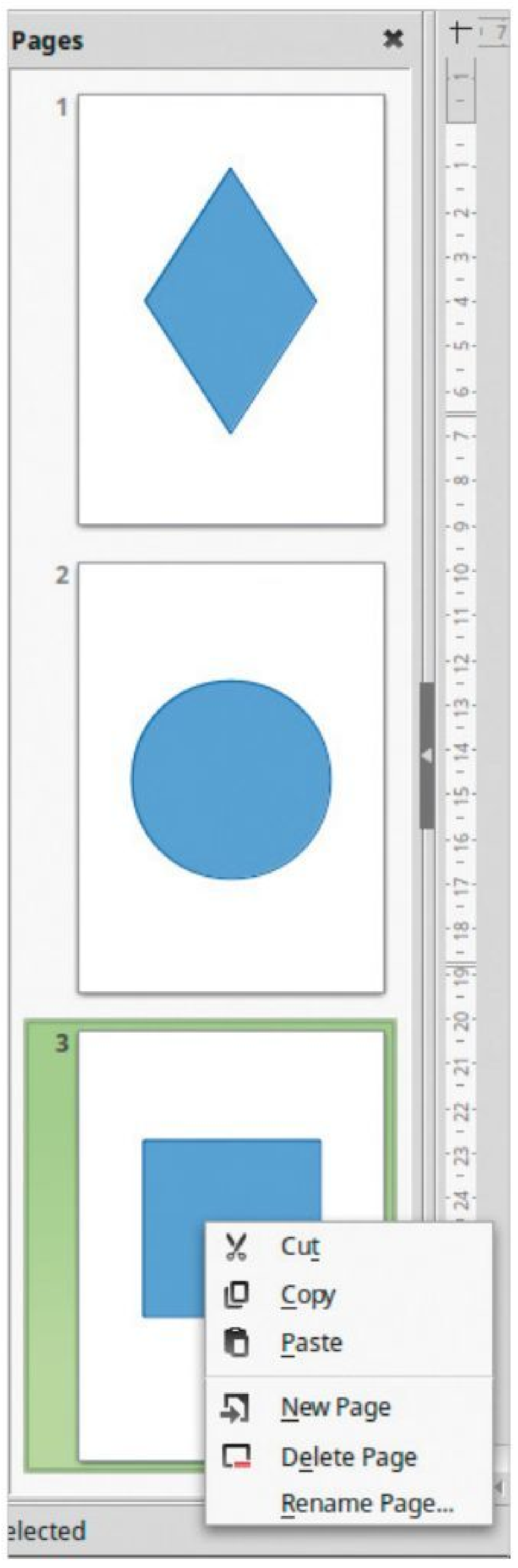
STEP 2 Along the top of the Draw window there is a slim ribbon bar, housing load, save and export options, along with imaging effects, text boxes and drawing functions. There are also numerous drawing and graphical functions down the left-hand side.


Untitled 1 - LibreOffice Draw
File
Edit
View
Insert
Format
Tools
Modify
Window
Help
Pages
1
Properties

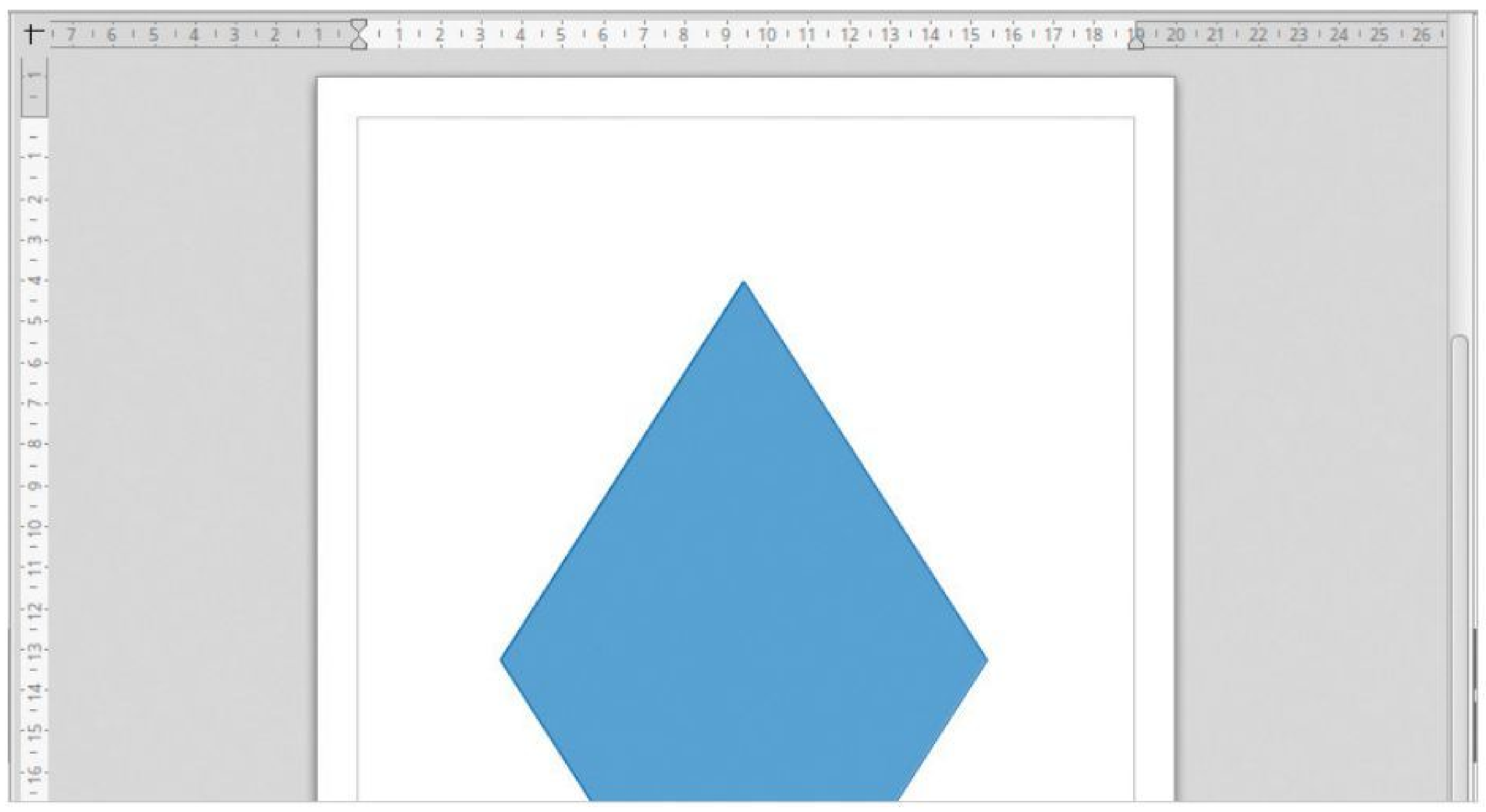
STEP 3 The Draw window is split into three main sections: Page Pane, Workspace and Sidebar.


Pages
1
Properties
Layout
Controls
Dimension Lines

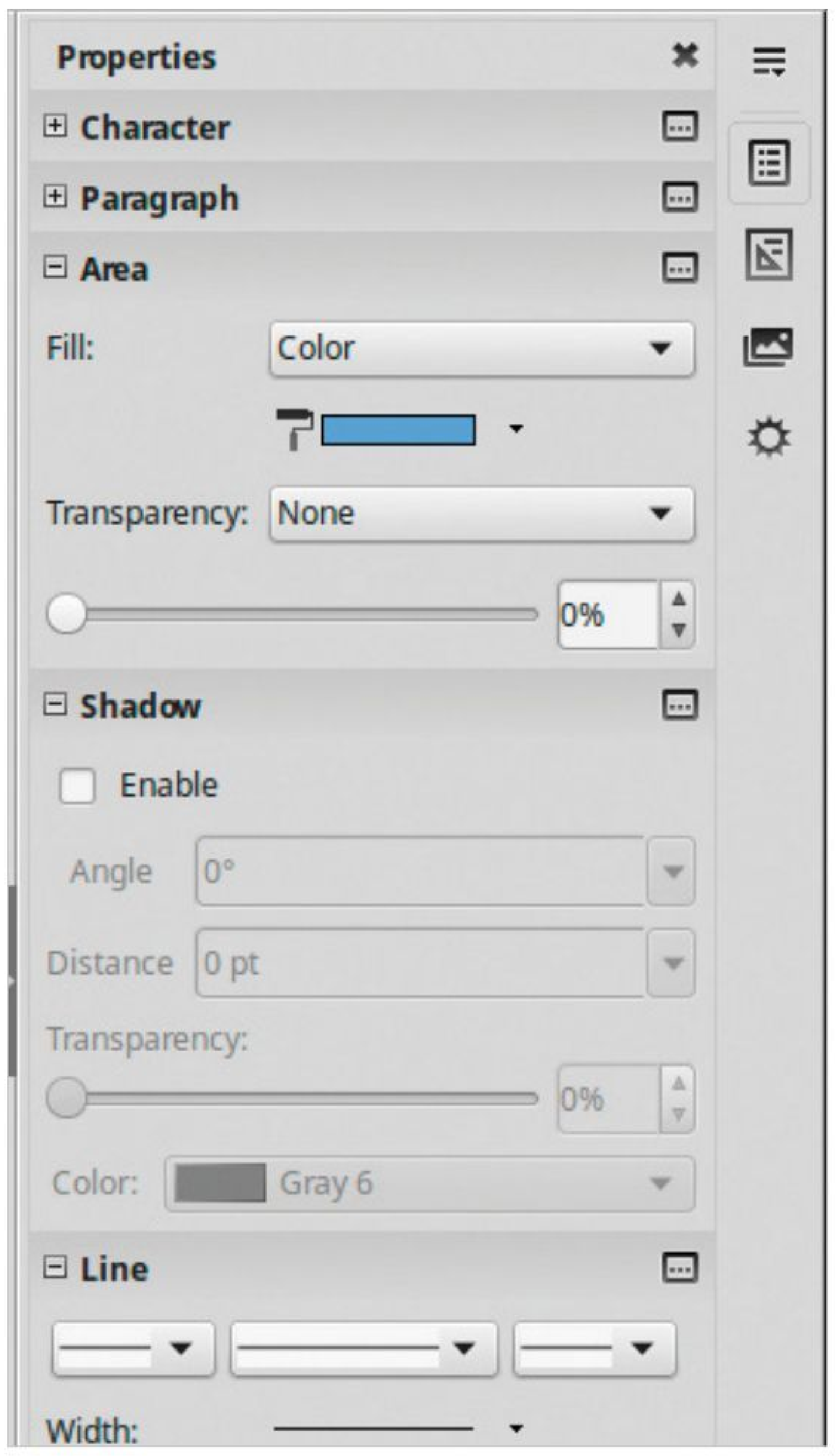
STEP 4 The left-hand side of the app window is the Page Pane, where you can spread drawings over several pages and have a preview of each of the pages. You're able to drag and drop pages to new positions from within the Page Pane.


Pages
1
2
3
Cut
Copy
Paste
New Page
Delete Page
Rename Page...
elected

STEP 5 The centre area is the Workspace pane, and is where you can populate your pages and work from. By default the Workspace pane has three layers: Layout, Control and Dimension Lines.



STEP 6 The Sidebar, the right-hand pane, gives you access to the Workspace and page properties and various options such as Styles and Formatting, a Gallery and a page Navigator.


Properties
Character
Paragraph
Area
Shadow
Line

Fill: Color

Transparency: None

0%

☐ Enable

Angle 0°

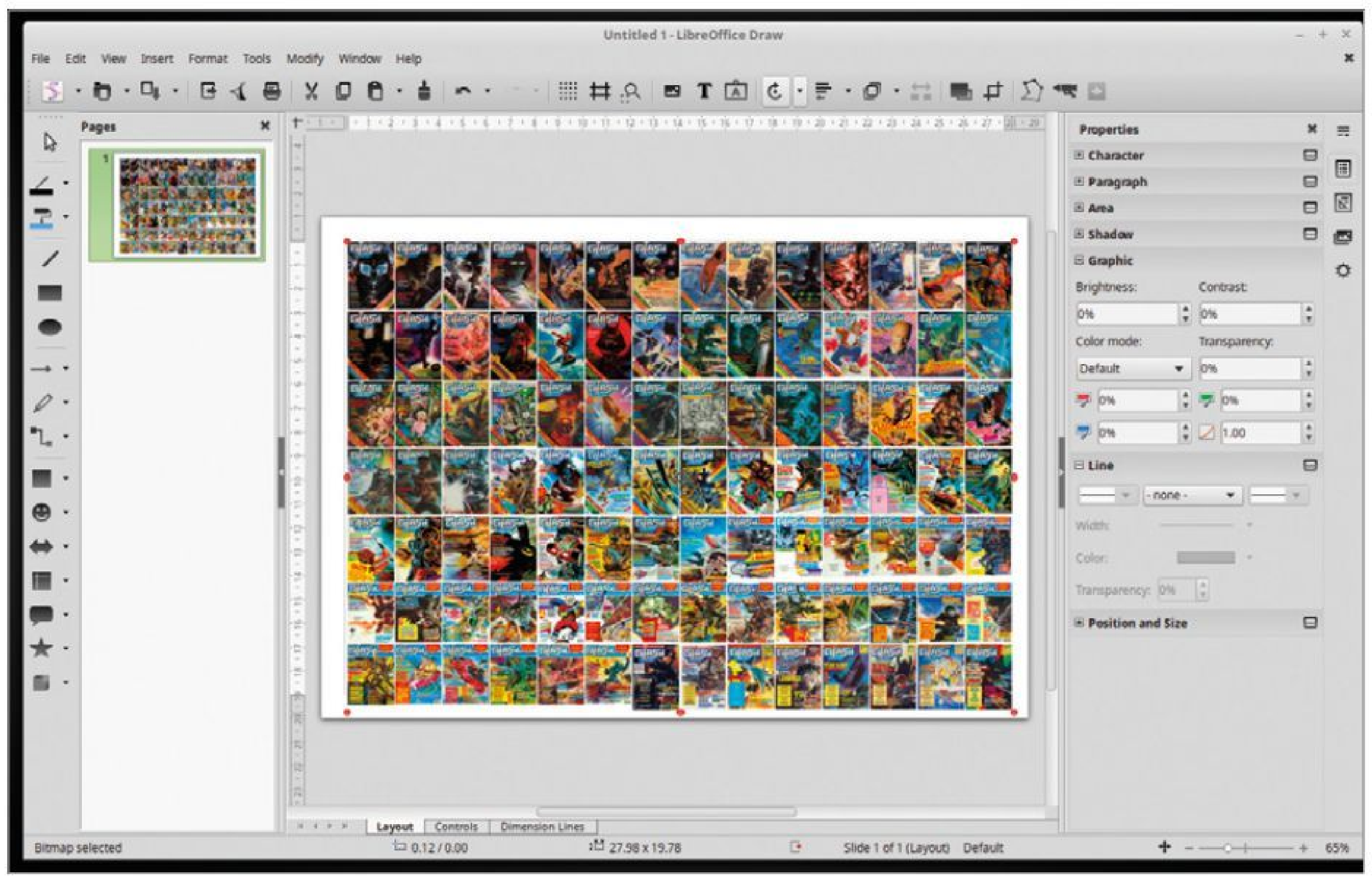
Distance 0 pt

Transparency: 0%

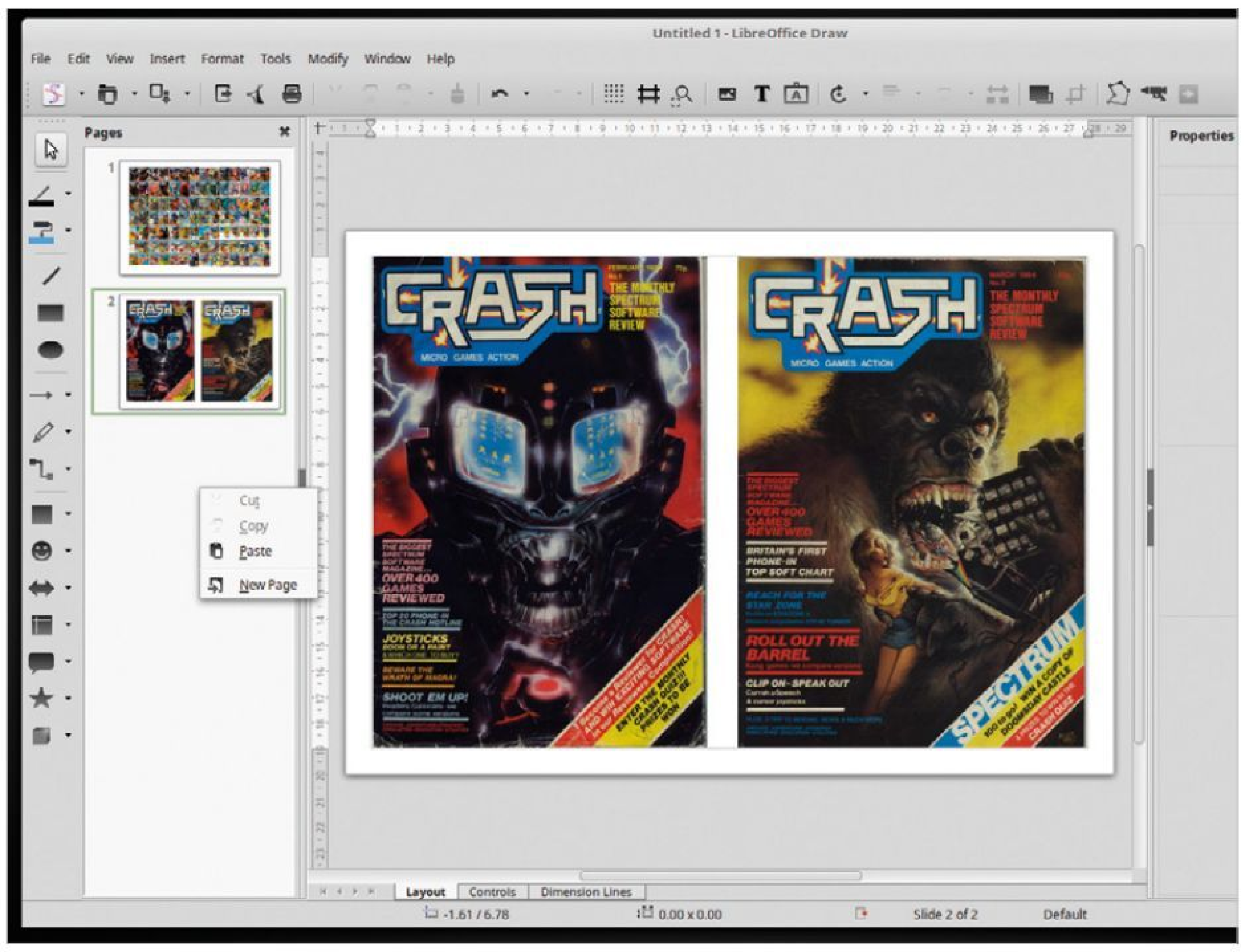
Color: Gray 6

Width:

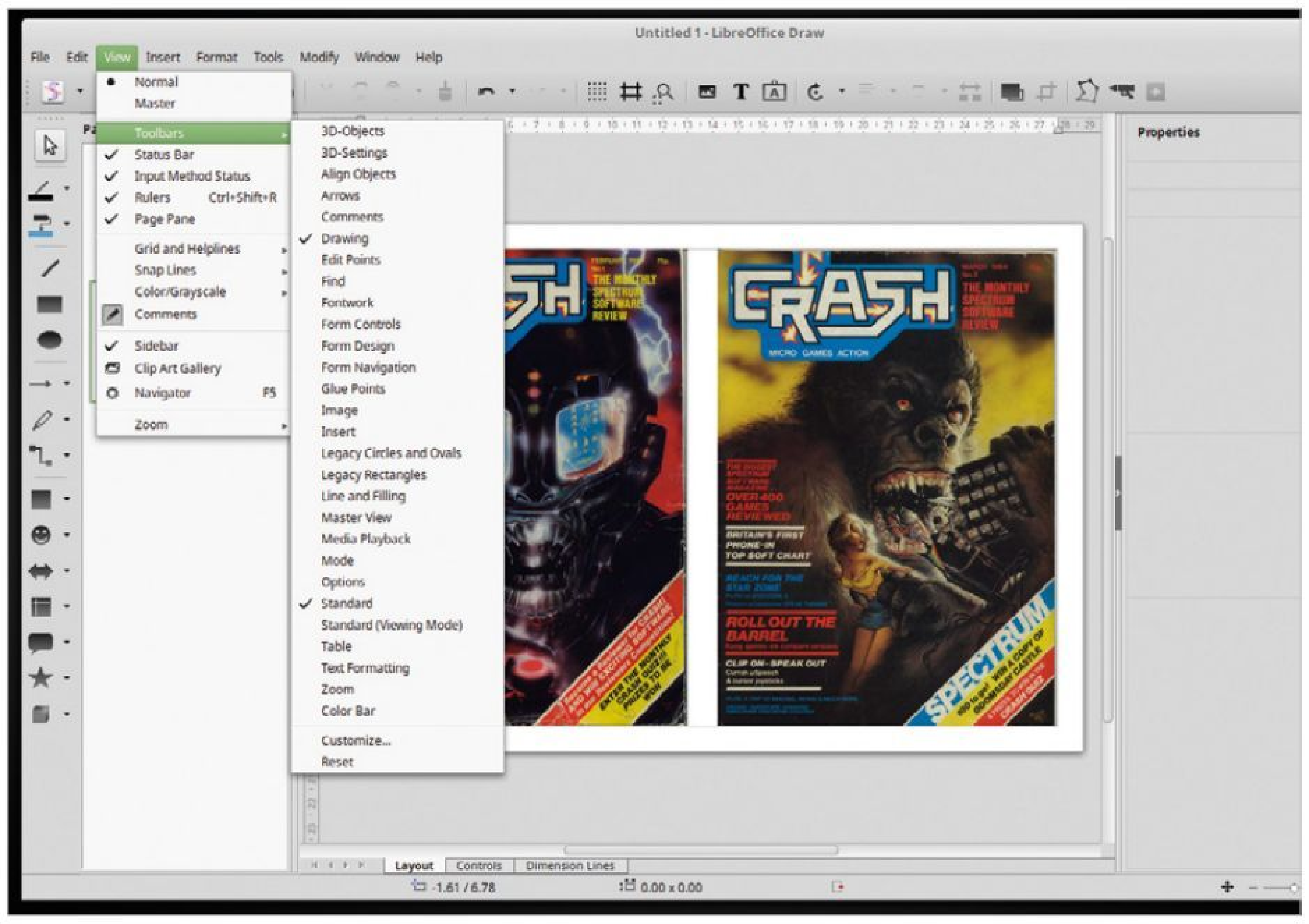
STEP 7 To place any images on your page, simply click the Image icon along the ribbon bar, locate the image on the system (Draw doesn't default to /Pictures, so you need to use the file manager to move around the folders) and click the Open button.


Untitled 1 - LibreOffice Draw
File Edit View Insert Format Tools Modify Window Help
Pages
Properties
Character
Paragraph
Area
Shadow
Graphic
Line
Position and Size
Layout Controls Dimension Lines

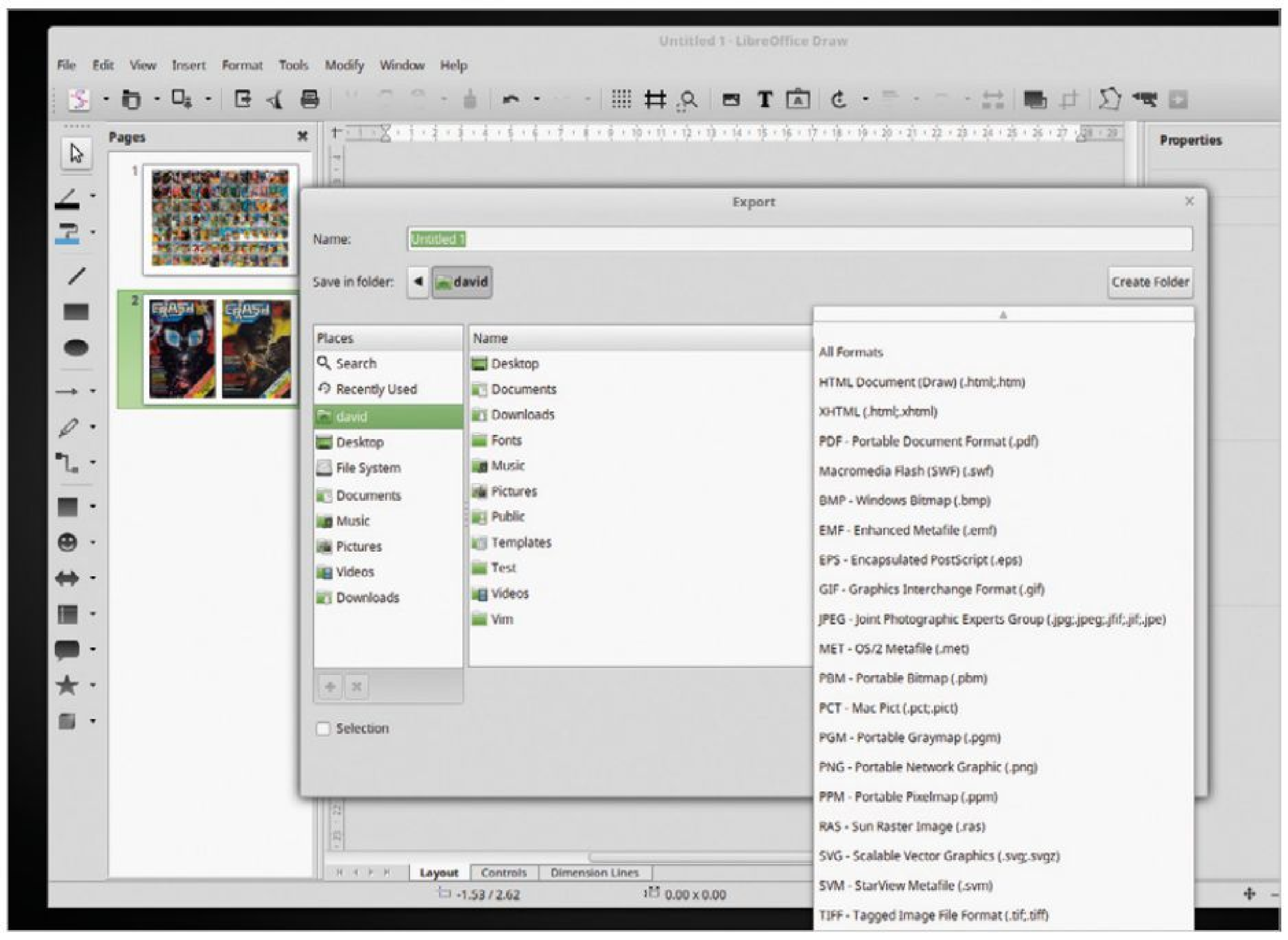
STEP 8 To add a new page right-click on the Page Pane and select 'New Page'. You can now populate that page with images and so on.


Untitled 1 - LibreOffice Draw
File Edit View Insert Format Tools Modify Window Help
Pages
Properties
Cut
Copy
Paste
New Page
Layout Controls Dimension Lines
Slide 2 of 2
Default

STEP 9 There are plenty of Toolbars to choose from that cover Drawing, Arrows, 3D Objects and Media Playback. Select View > Toolbars from the Menu Bar to view what's available.


Untitled 1 - LibreOffice Draw
File Edit View Insert Format Tools Modify Window Help
Normal
Master
Toolbars
Status Bar
Input Method Status
Rulers
Page Pane
Grid and Helplines
Snap Lines
Color/Grayscale
Comments
Sidebar
Clip Art Gallery
Navigator
Zoom
3D-Objects
3D-Settings
Align Objects
Arrows
Comments
Drawing
Edit Points
Find
Fontwork
Form Controls
Form Design
Form Navigation
Glue Points
Image
Insert
Legacy Circles and Ovals
Legacy Rectangles
Line and Filling
Master View
Media Playback
Mode
Options
Standard
Standard (Viewing Mode)
Table
Text Formatting
Zoom
Color Bar
Customize...
Reset
Properties

STEP 10 Clicking on File > Export As will allow you to save your work in a number of different file formats, even PDF.


Untitled 1 - LibreOffice Draw
Export
Create Folder
Places
Search
Recently Used
david
Desktop
File System
Documents
Music
Pictures
Videos
Downloads
Name
Desktop
Documents
Downloads
Fonts
Music
Pictures
Public
Templates
Test
Videos
Vim
Selection
All Formats
HTML Document (Draw) (.html;.htm)
XHTML (.html;.xhtml)
PDF - Portable Document Format (.pdf)
Macromedia Flash (SWF) (.swf)
BMP - Windows Bitmap (.bmp)
EMF - Enhanced Metafile (.emf)
EPS - Encapsulated PostScript (.eps)
GIF - Graphics Interchange Format (.gif)
JPEG - Joint Photographic Experts Group (.jpg;.jpeg;.jfif;.jif;.jpe)
MET - OS/2 Metafile (.met)
PBM - Portable Bitmap (.pbm)
PCT - Mac Pict (.pct;.pict)
PGM - Portable Graymap (.pgm)
PNG - Portable Network Graphic (.png)
PPM - Portable Pixelmap (.ppm)
RAS - Sun Raster Image (.ras)
SVG - Scalable Vector Graphics (.svg;.svgz)
SVM - StarView Metafile (.svm)
TIFF - Tagged Image File Format (.tif;.tiff)

Name: Untitled 1

Save in folder: david

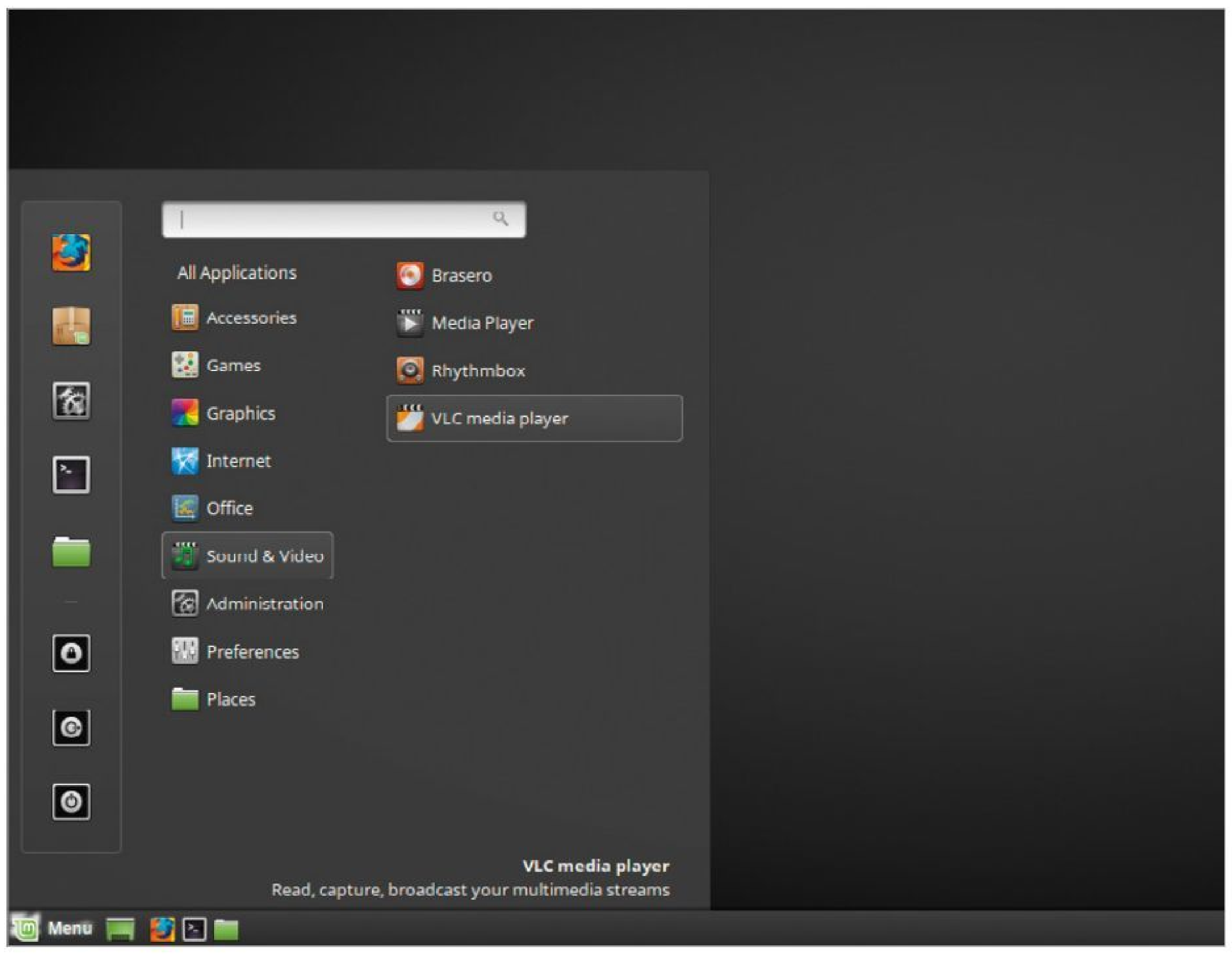
Watching Videos

Linux Mint comes preinstalled with everything you need to watch DVDs along with content from a number of sources and in a number of different formats: MP4, AVI, MPG and MKV are all catered for with Mint.

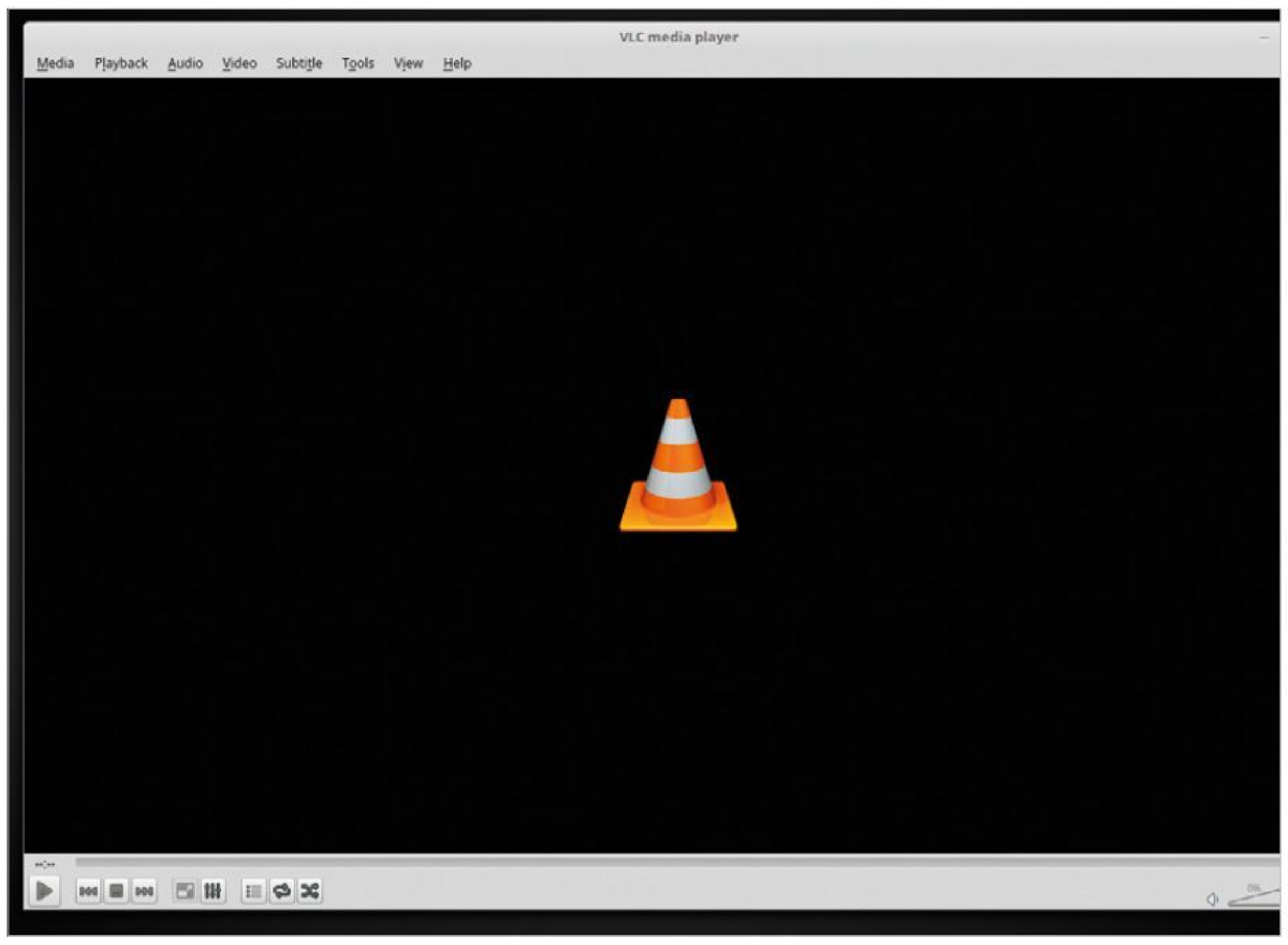
THAT'S ENTERTAINMENT

Let's have a look at what Mint offers the user with regards to watching video content, regardless of what type of media it is you want to view, and see what other apps are available too.

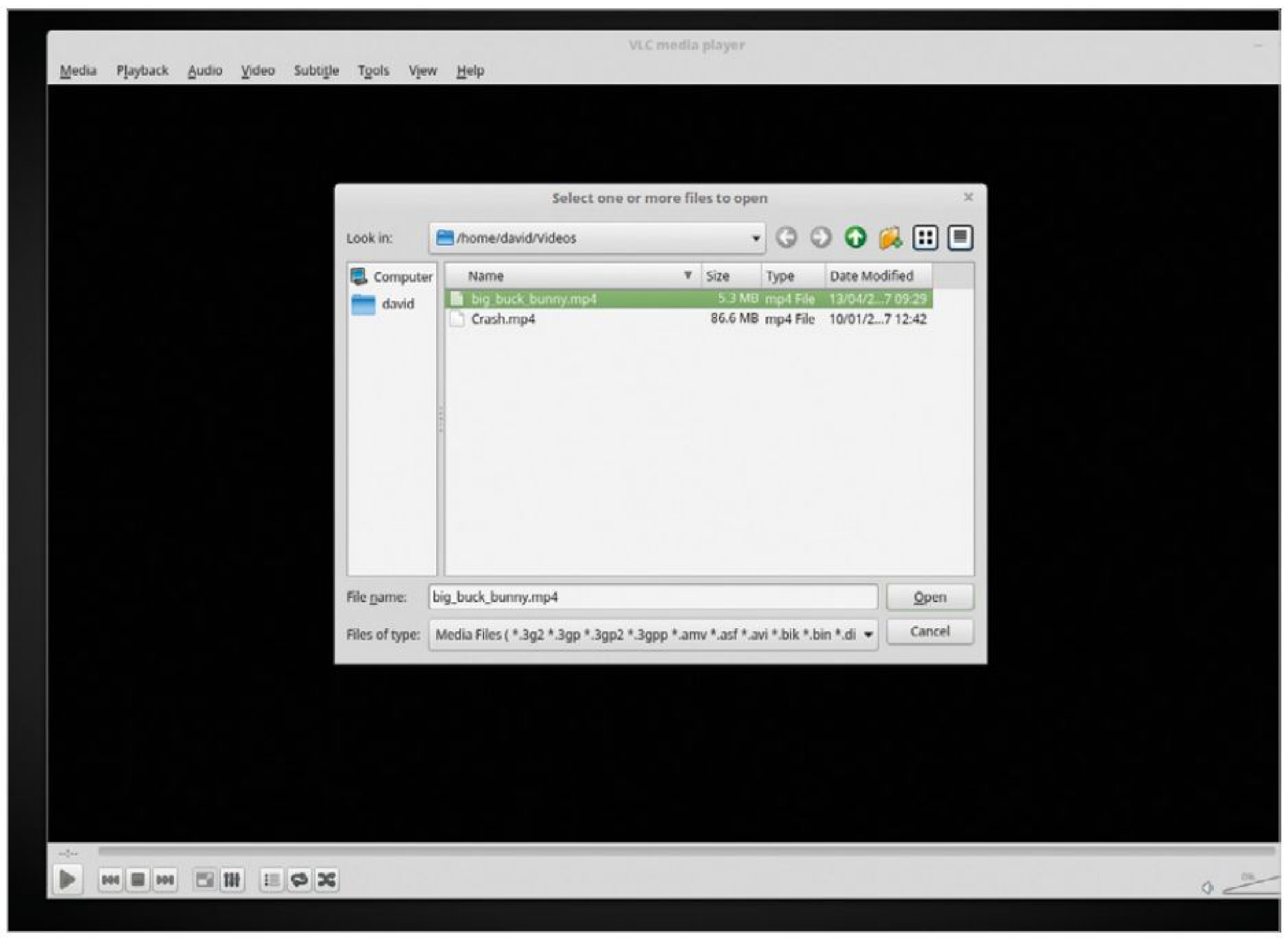
STEP 1 The main video player for Linux Mint is the preinstalled VLC Media Player app. You can find it in the Menu under the Sound & Vision heading, or alternatively use the search bar and enter VLC.


All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Brasero
Media Player
Rhythmbox
VLC media player
VLC media player
Read, capture, broadcast your multimedia streams
Menu

STEP 2 VLC is an extraordinarily powerful media player. You won't need to install any extra codecs (filters that allow other media players to playback different format content) as Mint already comes with the major codes preinstalled; it's remarkably lightweight too considering its capabilities.


VLC media player
Media
Playback
Audio
Video
Subtitle
Tools
View
Help

STEP 3 To launch a video stored on your computer from within VLC, click the Media menu option, followed by Open File. This will open a file manager box where you can navigate to the video in question. You can double-click the video from the file manager or single click followed by the Open button.


VLC media player
Media
Playback
Audio
Video
Subtitle
Tools
View
Help
Select one or more files to open
Computer
david
Open
Cancel

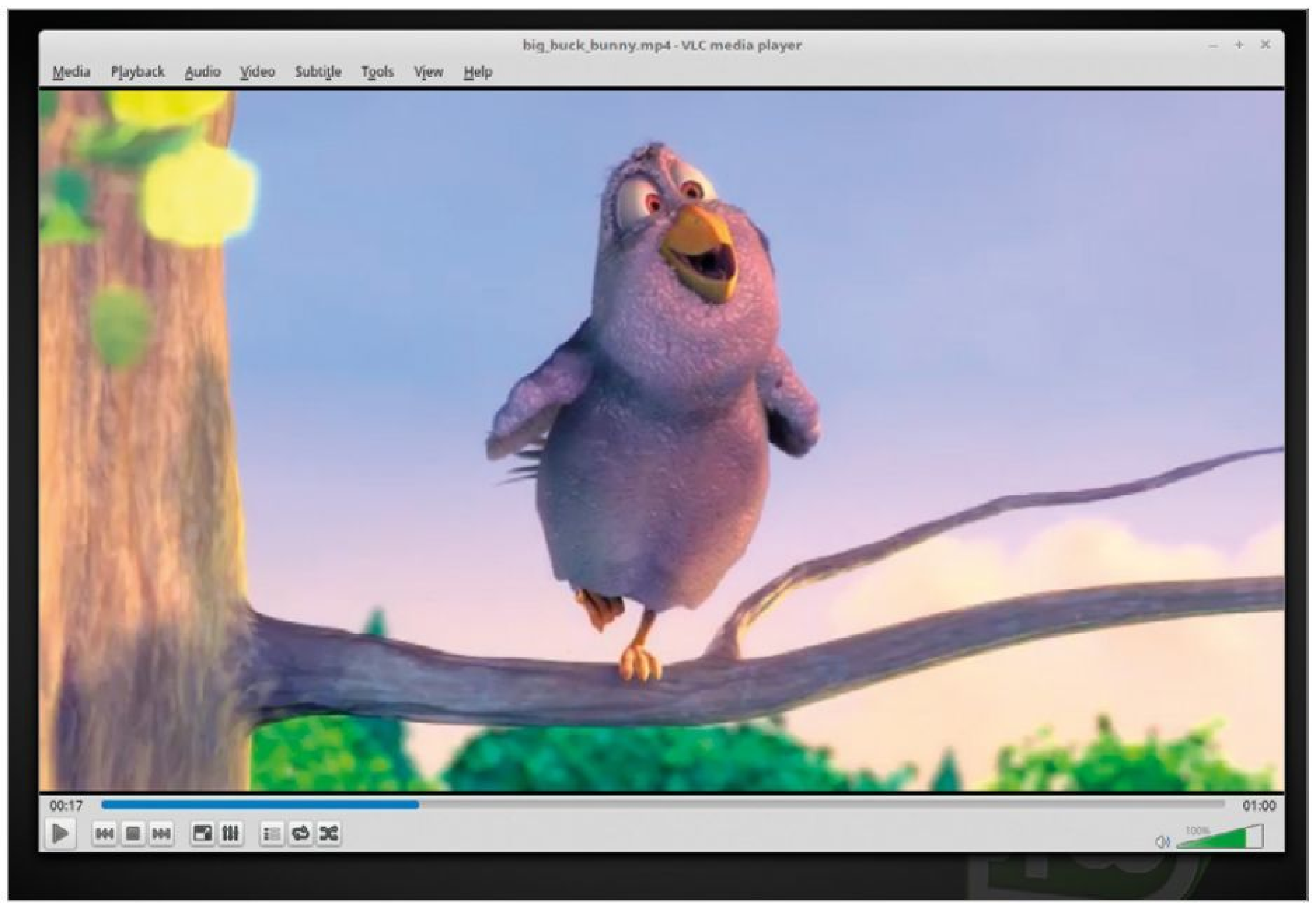
Look in: /home/david/Videos

Name	Size	Type	Date Modified
big_buck_bunny.mp4	5.3 MB	mp4 File	13/04/2...7 09:29
Crash.mp4	86.6 MB	mp4 File	10/01/2...7 12:42

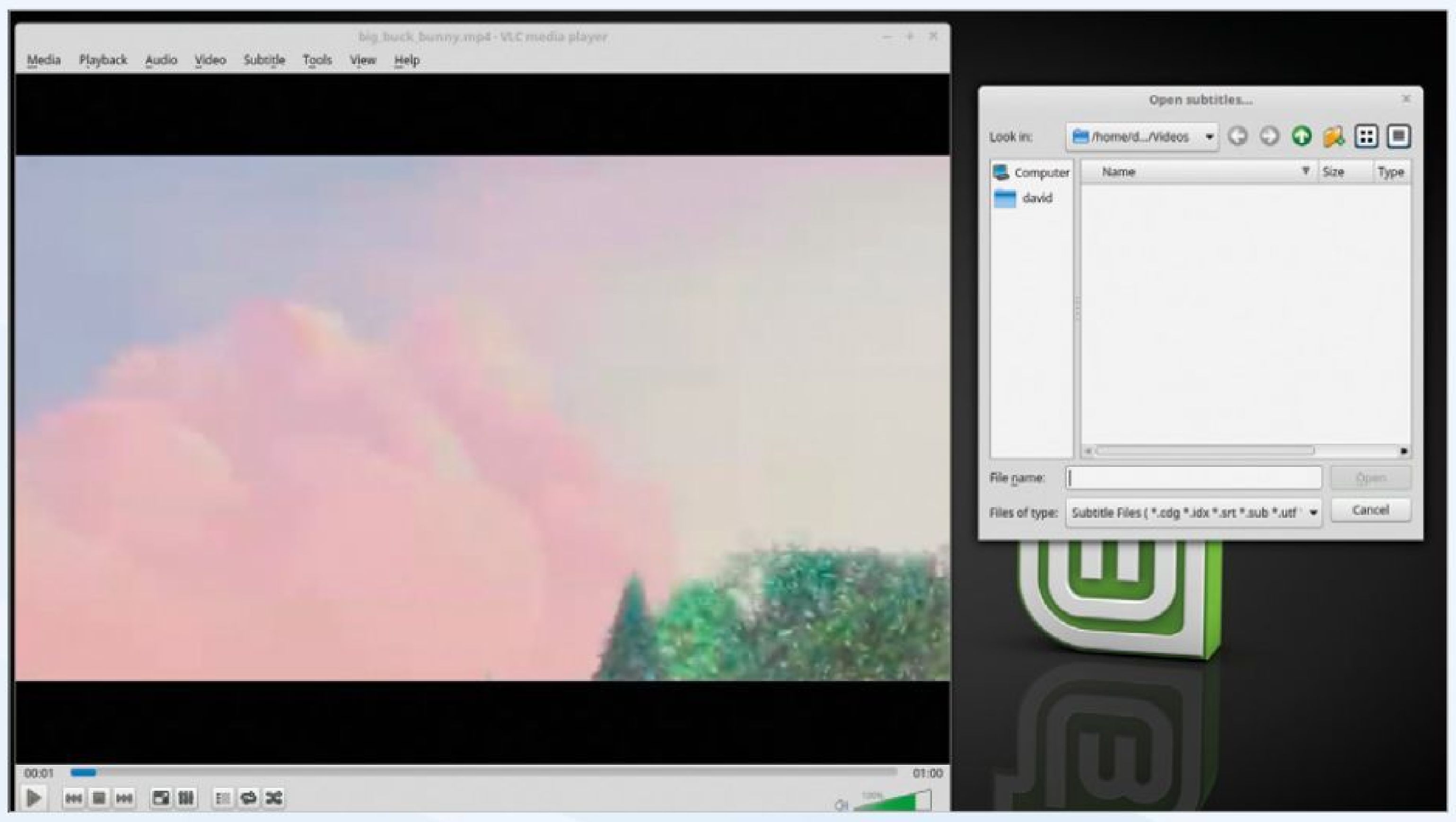
File name: big_buck_bunny.mp4

Files of type: Media Files (*.3g2 *.3gp *.3gp2 *.3gpp *.amv *.asf *.avi *.bik *.bin *.di

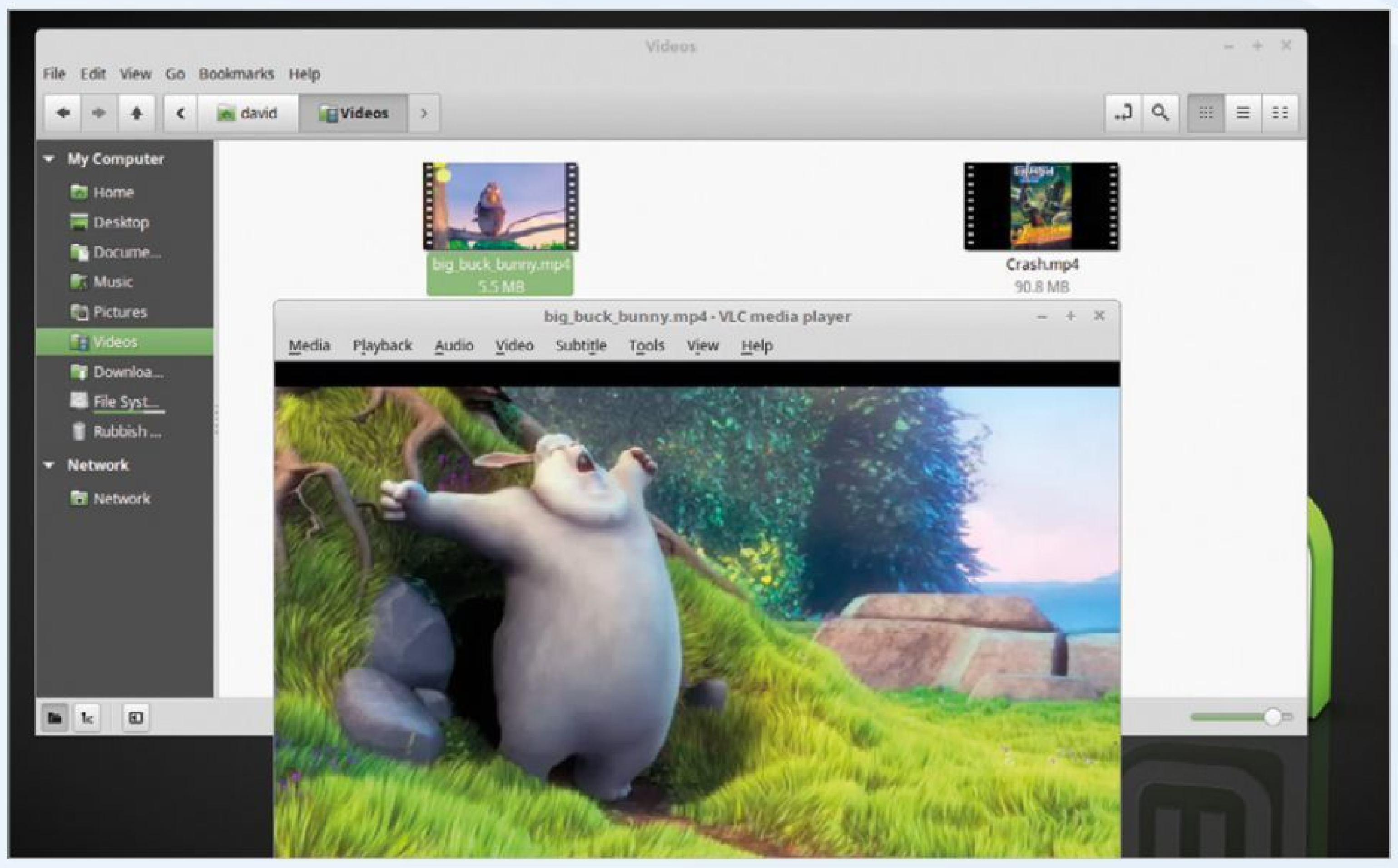
STEP 4 VLC will start playing the content, automatically resizing its playback window according to the last time it was used. You can double-click in the main VLC window to maximize to full screen. The control at the bottom of the VLC window follows the usual media presets: pause/play, skip back, stop, skip forward, full screen toggle and so on.


big_buck_bunny.mp4 - VLC media player
Media
Playback
Audio
Video
Subtitle
Tools
View
Help
00:17
01:00

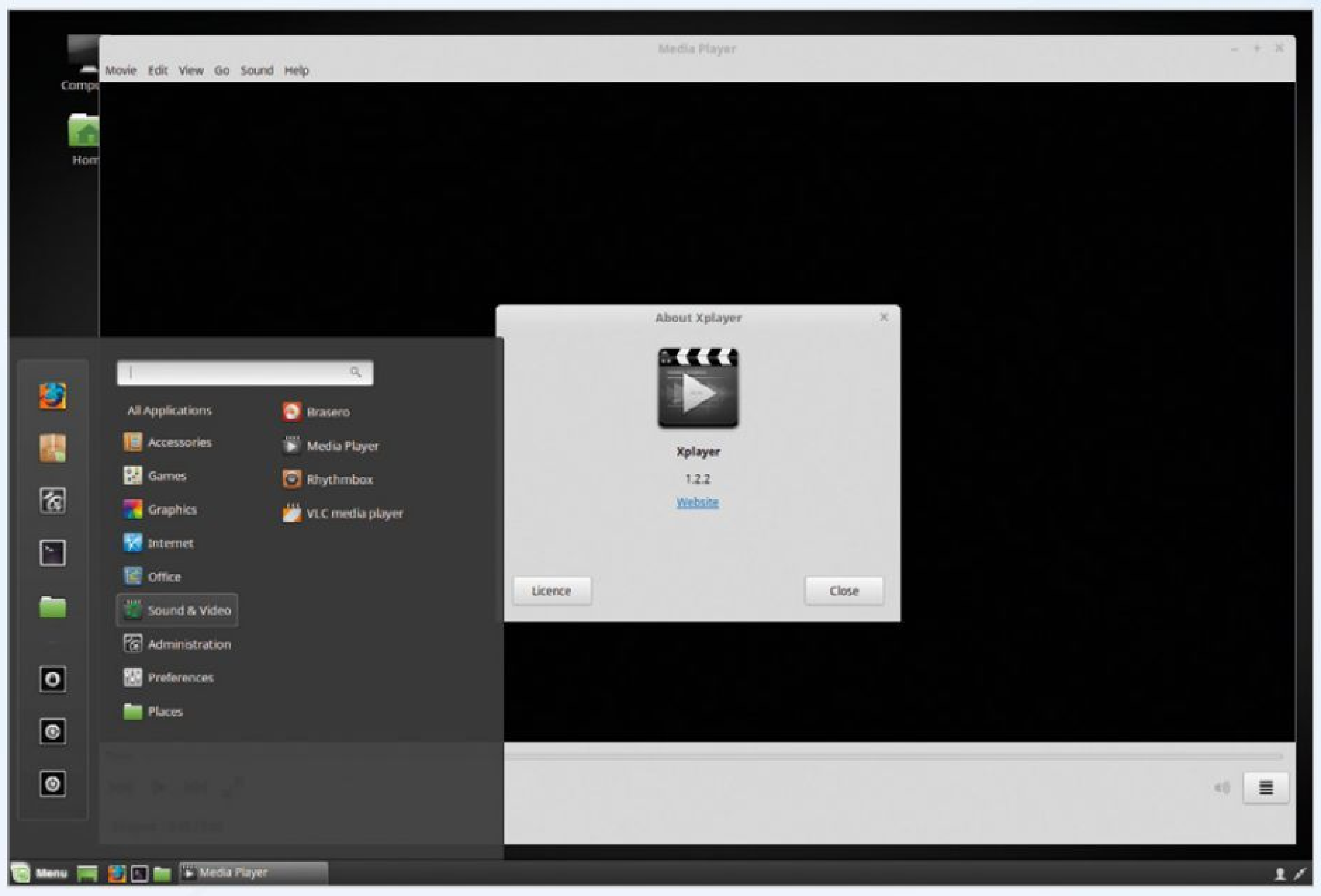
STEP 5 If your video comes with a separate subtitle file, you can activate it by looking to the top section menu bar, clicking on Subtitle then Add Subtitle File. This will launch a file manager window, as before, where you can point to the location of the subtitle file.


big_buck_bunny.mp4 - VLC media player
Media Playback Audio Video Subtitle Tools View Help
Open subtitles...
Look in:
Computer
david
Name
Size
Type
File name:
Files of type: Subtitle Files
Open
Cancel

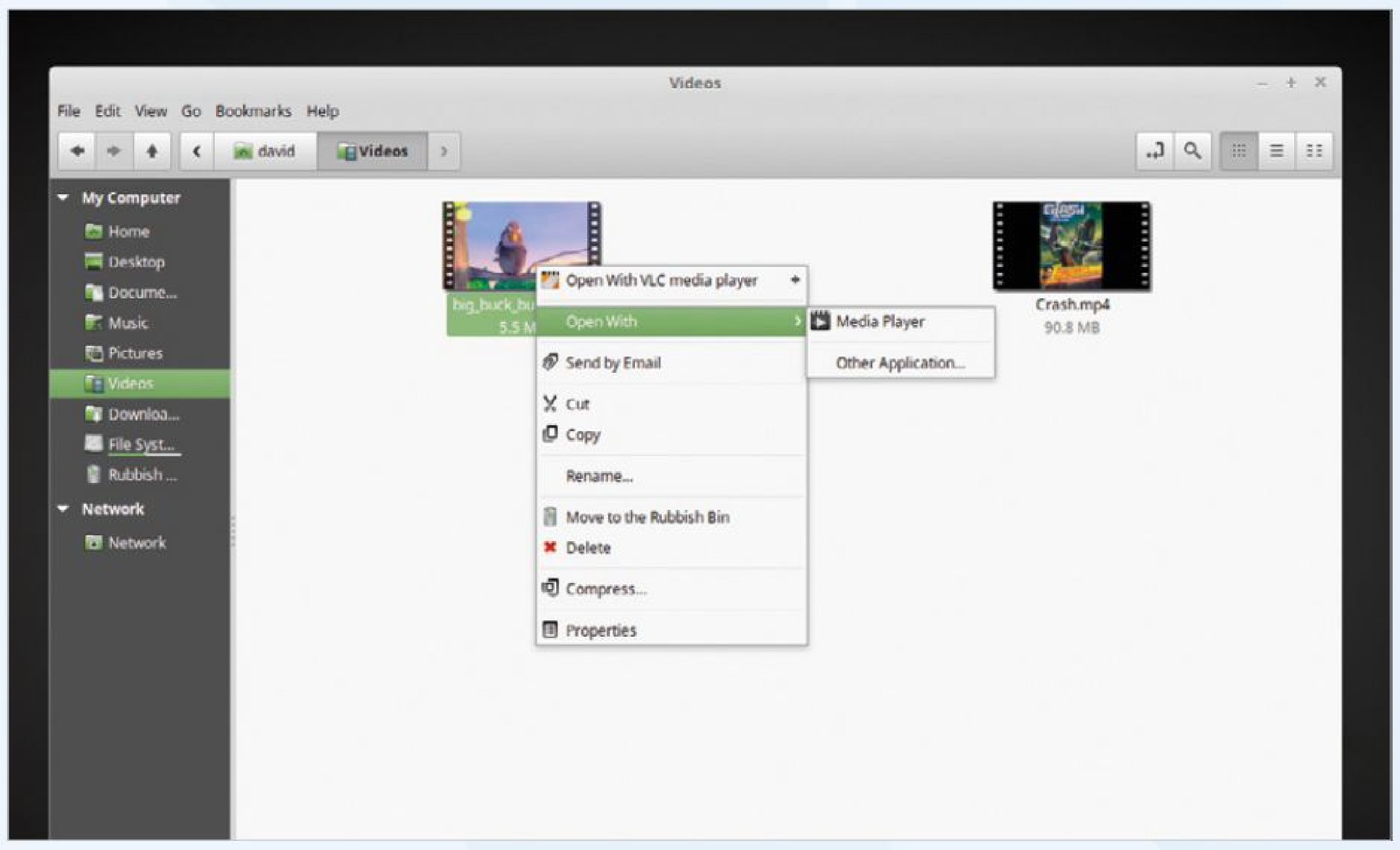
STEP 6 Alternatively, you can navigate to the folder where the video is located and simply double-click it to start playing in VLC, since VLC is the default Mint media player. This is a lot easier, as media files can be located on Windows shares and NAS drives, so finding them via the file manager can be a bit long-winded.


Videos
File Edit View Go Bookmarks Help
david
Videos
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Network
Network
big_buck_bunny.mp4
5.5 MB
Crash.mp4
90.8 MB
big_buck_bunny.mp4 - VLC media player
Media Playback Audio Video Subtitle Tools View Help

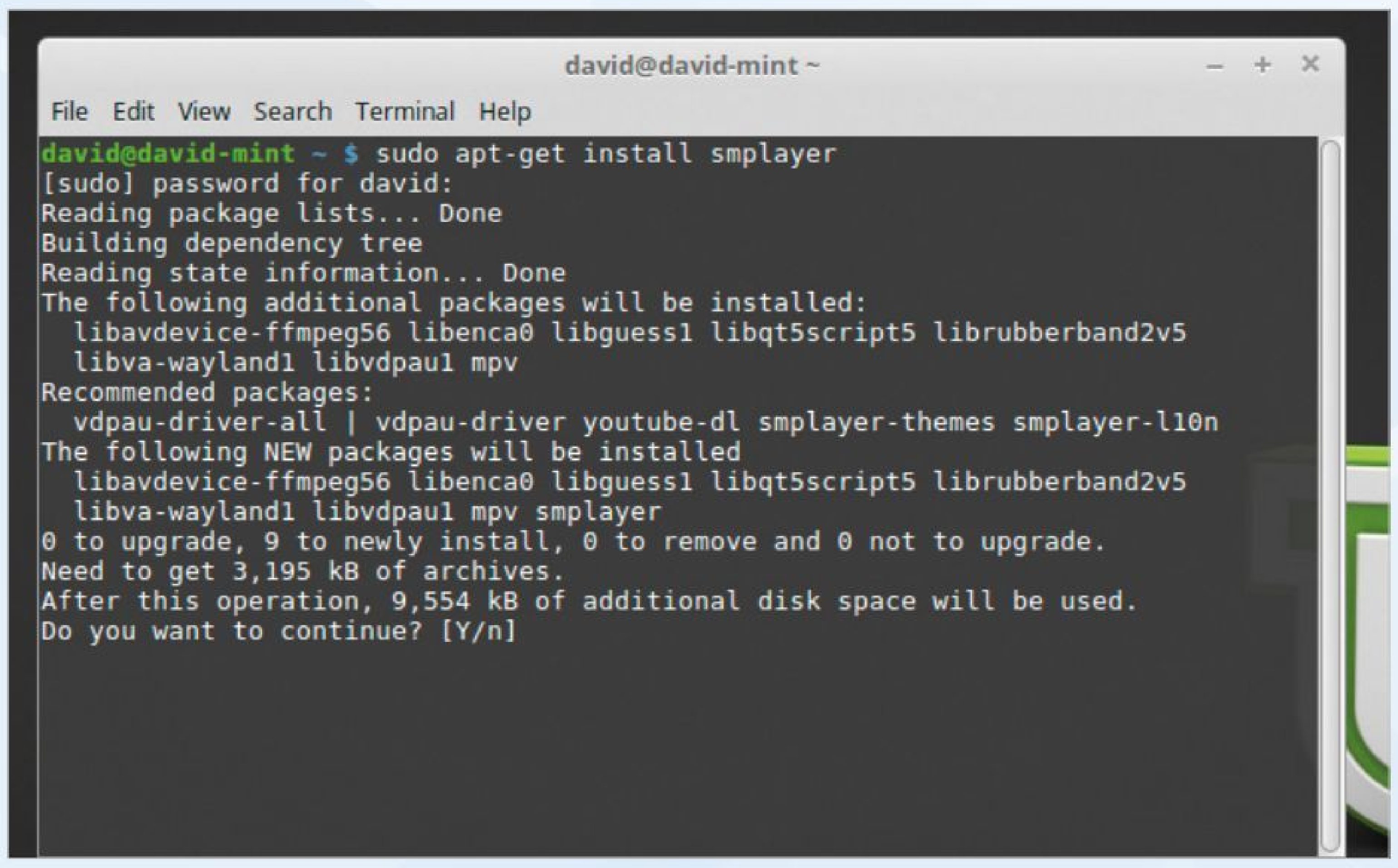
STEP 7 Linux Mint also comes with another media player, called Xplayer. Whilst it is a perfectly capable media player it doesn't perform quite as well as VLC. You may find bigger media files and those with fast-paced scenes stutter and tear. This is mainly due to the player trying to keep up with the graphics subsystem.


Media Player
Movie Edit View Go Sound Help
About Xplayer
Xplayer
1.2.2
Website
Licence
Close
All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Brasero
Media Player
Rhythmbox
VLC media player
Menu

STEP 8 You can open a video within Xplayer in much the same was as VLC. Click on Movie > Open, and point to the video in question in the file manager. You can also right-click the video within Nemo and use Open With > Media Player.

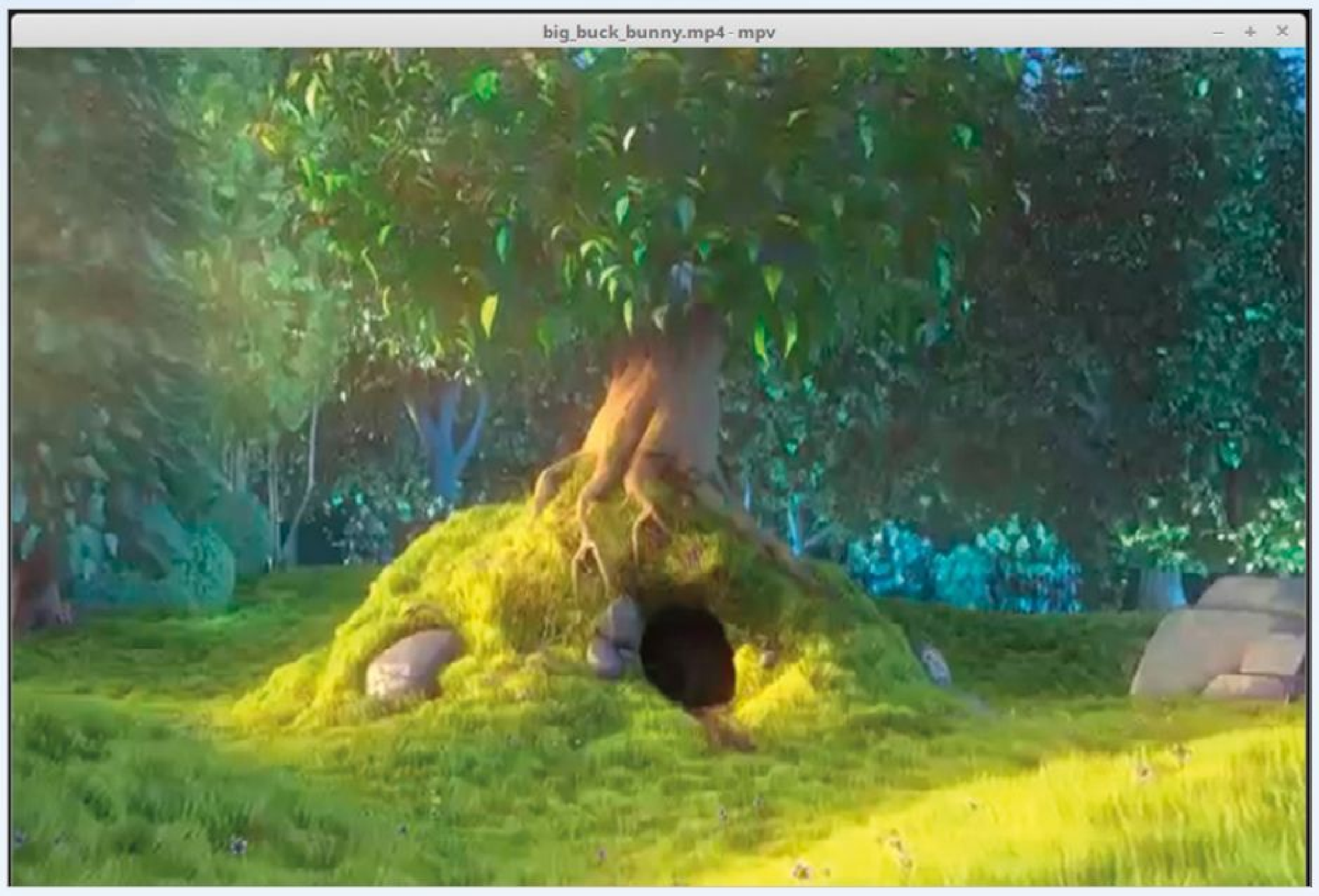

Videos
File Edit View Go Bookmarks Help
david
Videos
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Network
Network
Open With VLC media player
Open With
Send by Email
Cut
Copy
Rename...
Move to the Rubbish Bin
Delete
Compress...
Properties
Media Player
Other Application...
Crash.mp4
90.8 MB

STEP 9 If you're interested in trying out another media player, drop into a Terminal and enter: sudo apt-get install smplayer. Accept the installation and let the program download and install in Mint. Once it's done, you can enter exit in the Terminal, or just close the window.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ sudo apt-get install smplayer
[sudo] password for david:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libavdevice-ffmpeg56 libenca0 libguess1 libqt5script5 librubberband2v5
  libva-wayland1 libvdpau1 mpv
Recommended packages:
  vdpau-driver-all | vdpau-driver youtube-dl smplayer-themes smplayer-l10n
The following NEW packages will be installed
  libavdevice-ffmpeg56 libenca0 libguess1 libqt5script5 librubberband2v5
  libva-wayland1 libvdpau1 mpv smplayer
0 to upgrade, 9 to newly install, 0 to remove and 0 not to upgrade.
Need to get 3,195 kB of archives.
After this operation, 9,554 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

STEP 10 SMPlayer can be found at Menu > Sound & Vision. It's an excellent media player with tons of features that ape those of VLC. From the Open menu option you're able to launch videos stored on your computer or remote location, as well as any DVDs you've inserted into your system.


big_buck_bunny.mp4 - mpv

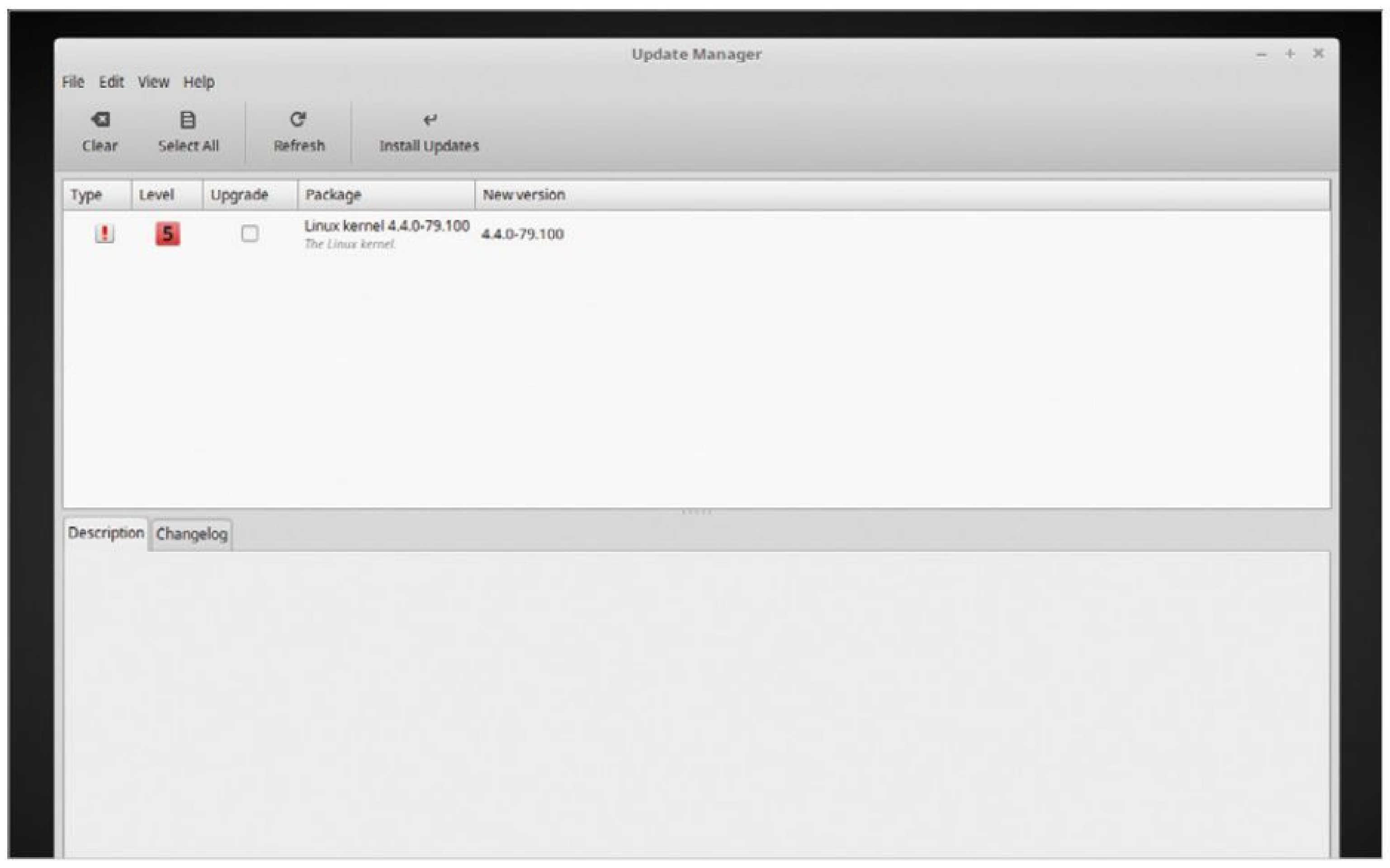
Listening to Music

A Linux Mint computer makes for a marvellous media centre. We've already looked at watching videos but what about listening to your favourite bands and music collection? Thanks to Mint's multimedia capabilities, there's a lot to offer the audiophile.

KEEP ON ROCKIN'

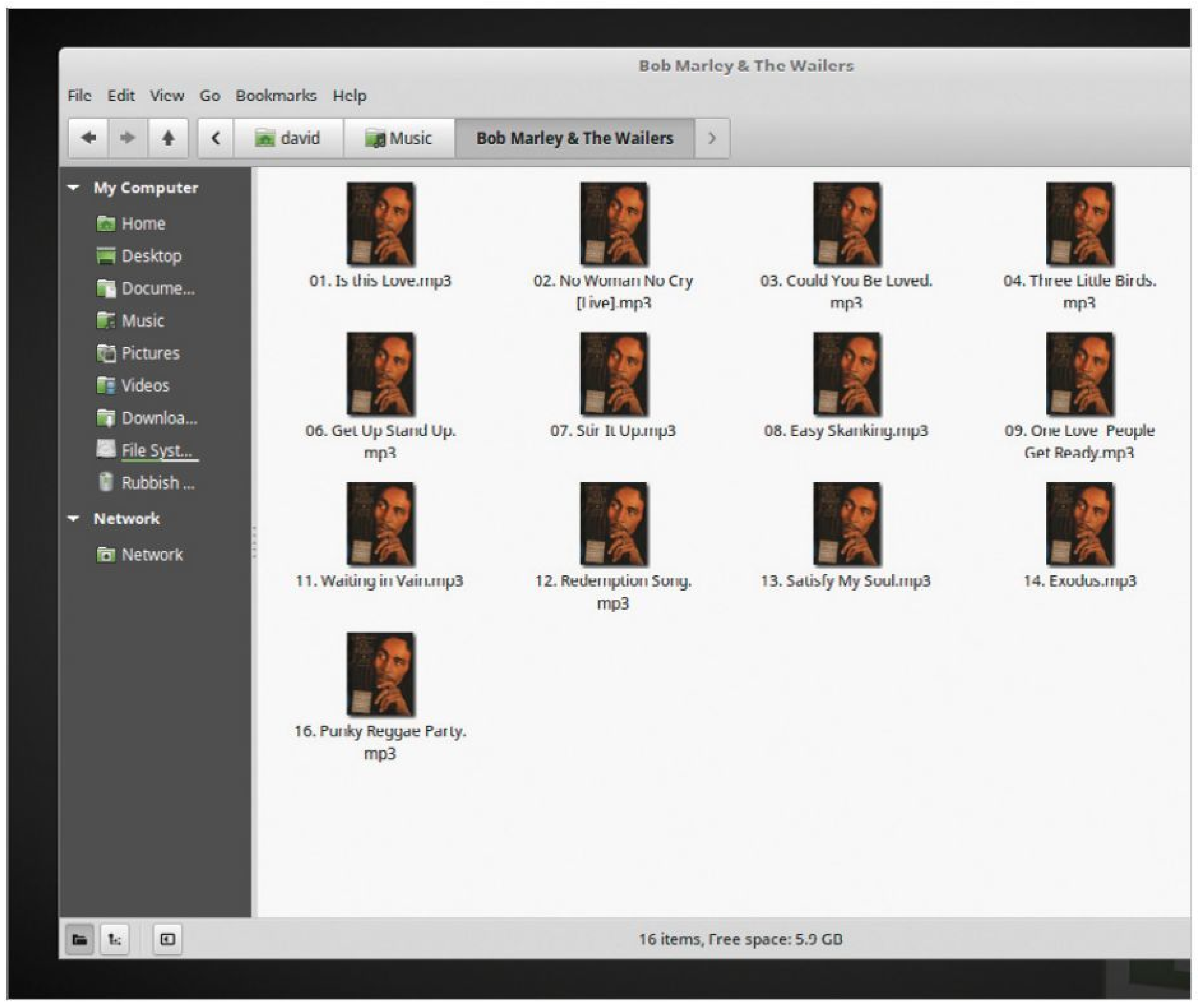
There's more to playing music than simply listening to your Iron Maiden CD collection. These days we can stream music from a variety of sources and listen to Internet radio stations.

STEP 1 The first step is to ensure that you're up to date. The Linux world, as we've already seen, moves at a heady pace at times so to make sure you've got the latest versions of the apps, programs, tools and core Mint files, head to the Update Manager, click Refresh and apply any level 3 or less updates.

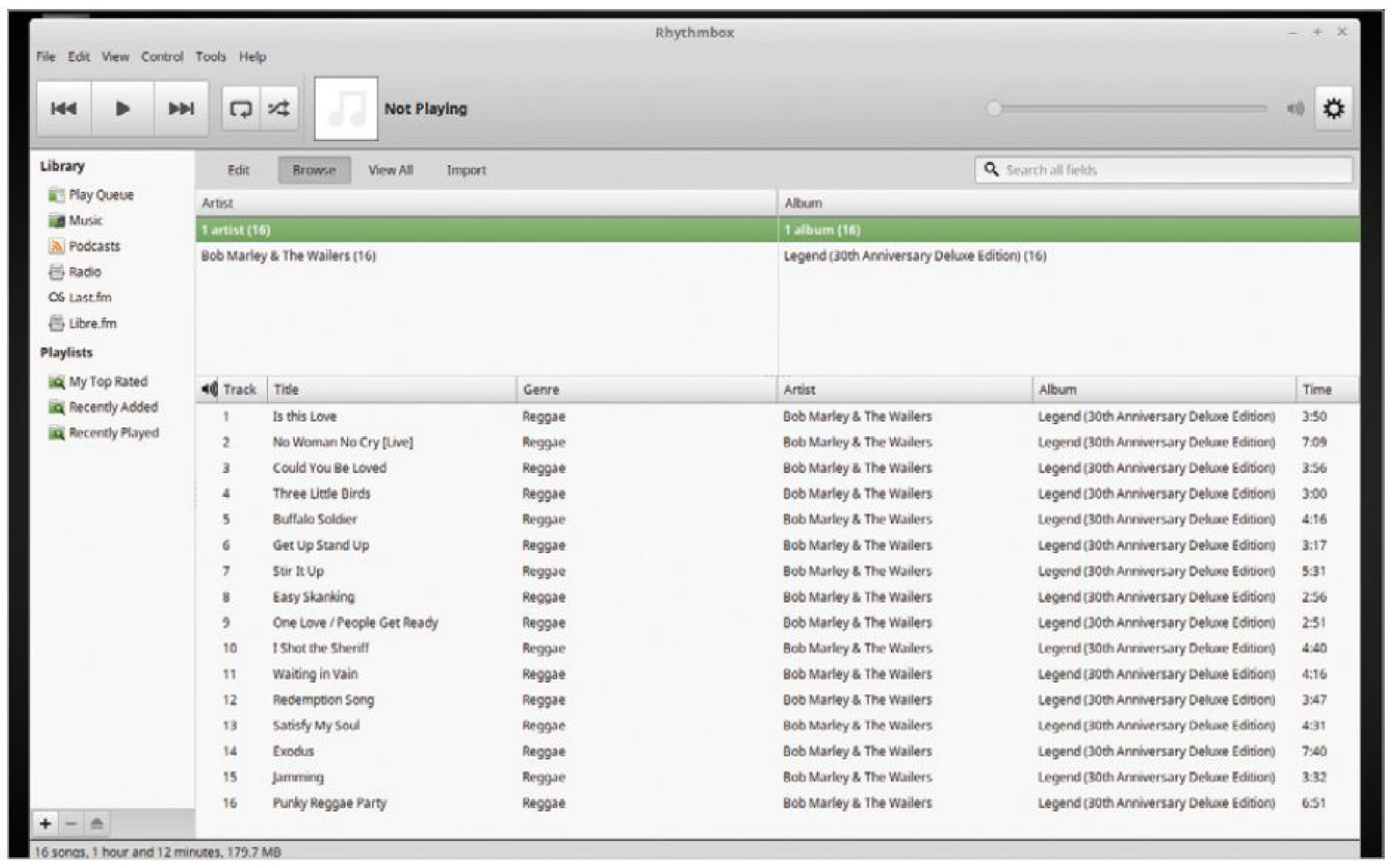

Update Manager
File Edit View Help
Clear
Select All
Refresh
Install Updates
Description
Changelog

Type	Level	Upgrade	Package	New version
!	5	☐	Linux kernel 4.4.0-79.100 *The Linux kernel.*	4.4.0-79.100

STEP 2 We'll use the built-in music player Rhythmbox for the moment, it's found under Sound & Video from the Menu button. However, before you open the program it's a good idea to make sure you have content ready to play. If you can, copy your MP3 music collection into the Home/Music folder.


Bob Marley & The Wailers
File Edit View Go Bookmarks Help
david
Music
Bob Marley & The Wailers
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Network
Network
01. Is this Love.mp3
02. No Woman No Cry [Live].mp3
03. Could You Be Loved.mp3
04. Three Little Birds.mp3
06. Get Up Stand Up.mp3
07. Stir It Up.mp3
08. Easy Skanking.mp3
09. One Love People Get Ready.mp3
11. Waiting in Vain.mp3
12. Redemption Song.mp3
13. Satisfy My Soul.mp3
14. Exodus.mp3
16. Punky Reggae Party.mp3
16 items, Free space: 5.9 GB

STEP 3 The reason we copied the music first is that Rhythmbox automatically scans the Music folder when it's launched. If there's music there to begin with, it makes things a little easier. Open Rhythmbox from the Menu > Sound & Vision and you'll see a playlist containing the music in your Home folder.

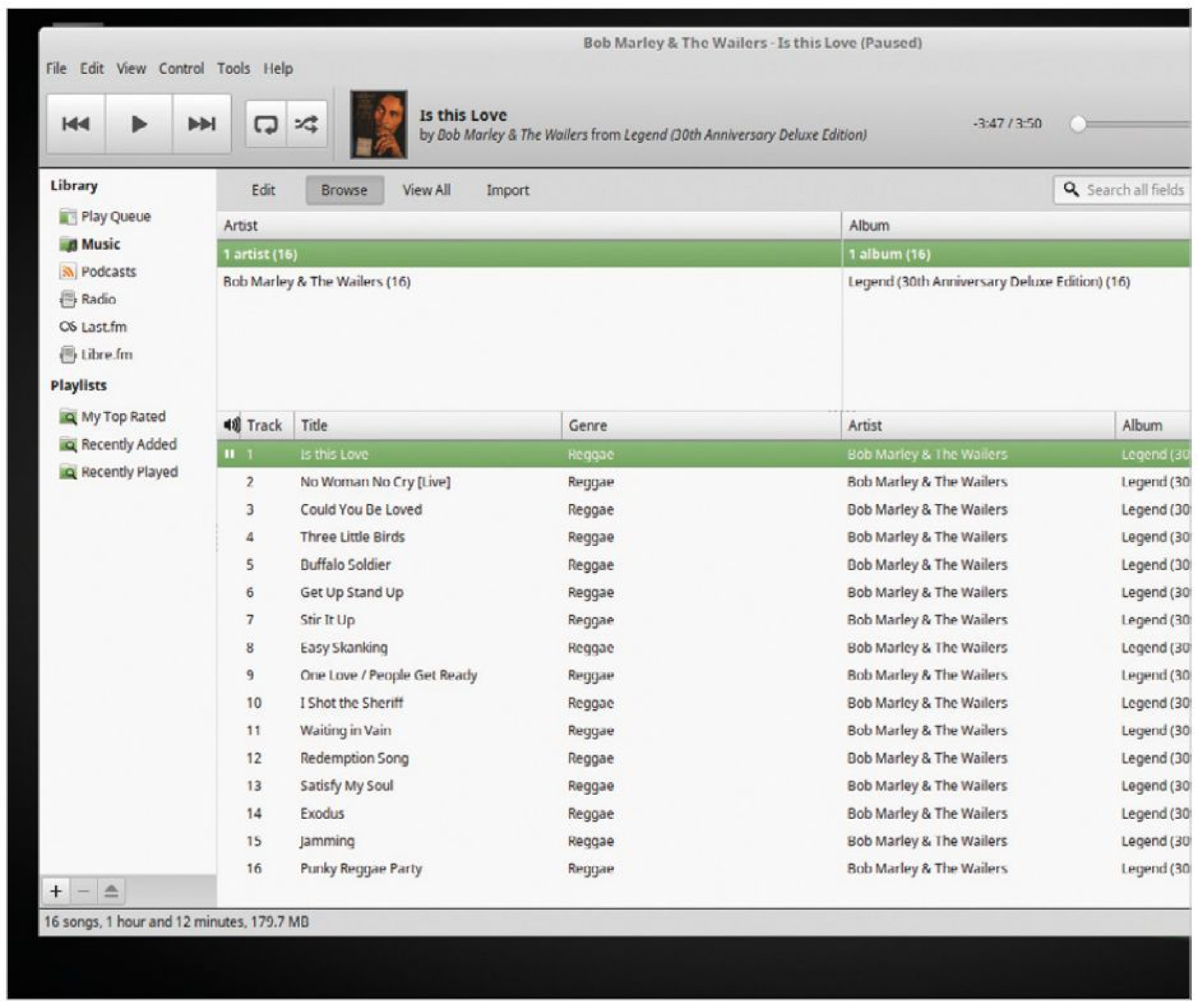

Rhythmbox
File Edit View Control Tools Help
Not Playing
Library
Play Queue
Music
Podcasts
Radio
Last.fm
Libre.fm
Playlists
My Top Rated
Recently Added
Recently Played
Edit
Browse
View All
Import
Search all fields

Artist	Album
1 artist (16)	1 album (16)
Bob Marley & The Wailers (16)	Legend (30th Anniversary Deluxe Edition) (16)

Track	Title	Genre	Artist	Album	Time
1	Is this Love	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	3:50
2	No Woman No Cry [Live]	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	7:09
3	Could You Be Loved	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	3:56
4	Three Little Birds	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	3:00
5	Buffalo Soldier	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	4:16
6	Get Up Stand Up	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	3:17
7	Stir It Up	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	5:31
8	Easy Skanking	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	2:56
9	One Love / People Get Ready	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	2:51
10	I Shot the Sheriff	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	4:40
11	Waiting in Vain	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	4:16
12	Redemption Song	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	3:47
13	Satisfy My Soul	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	4:31
14	Exodus	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	7:40
15	Jamming	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	3:32
16	Punky Reggae Party	Reggae	Bob Marley & The Wailers	Legend (30th Anniversary Deluxe Edition)	6:51

16 songs, 1 hour and 12 minutes, 179.7 MB

STEP 4 You can double-click any of the tracks listed in the playlist and Rhythmbox will start to play it. The media controls are at the top of the Rhythmbox window but you can also click the musical note icon in the bottom right panel top open pop-up content for the media being played.


Bob Marley & The Wailers - Is this Love (Paused)
File Edit View Control Tools Help
-3:47 / 3:50
Library
Play Queue
Music
Podcasts
Radio
Last.fm
Libre.fm
Playlists
My Top Rated
Recently Added
Recently Played
Edit
Browse
View All
Import
Search all fields

Is this Love
by *Bob Marley & The Wailers* from *Legend (30th Anniversary Deluxe Edition)*

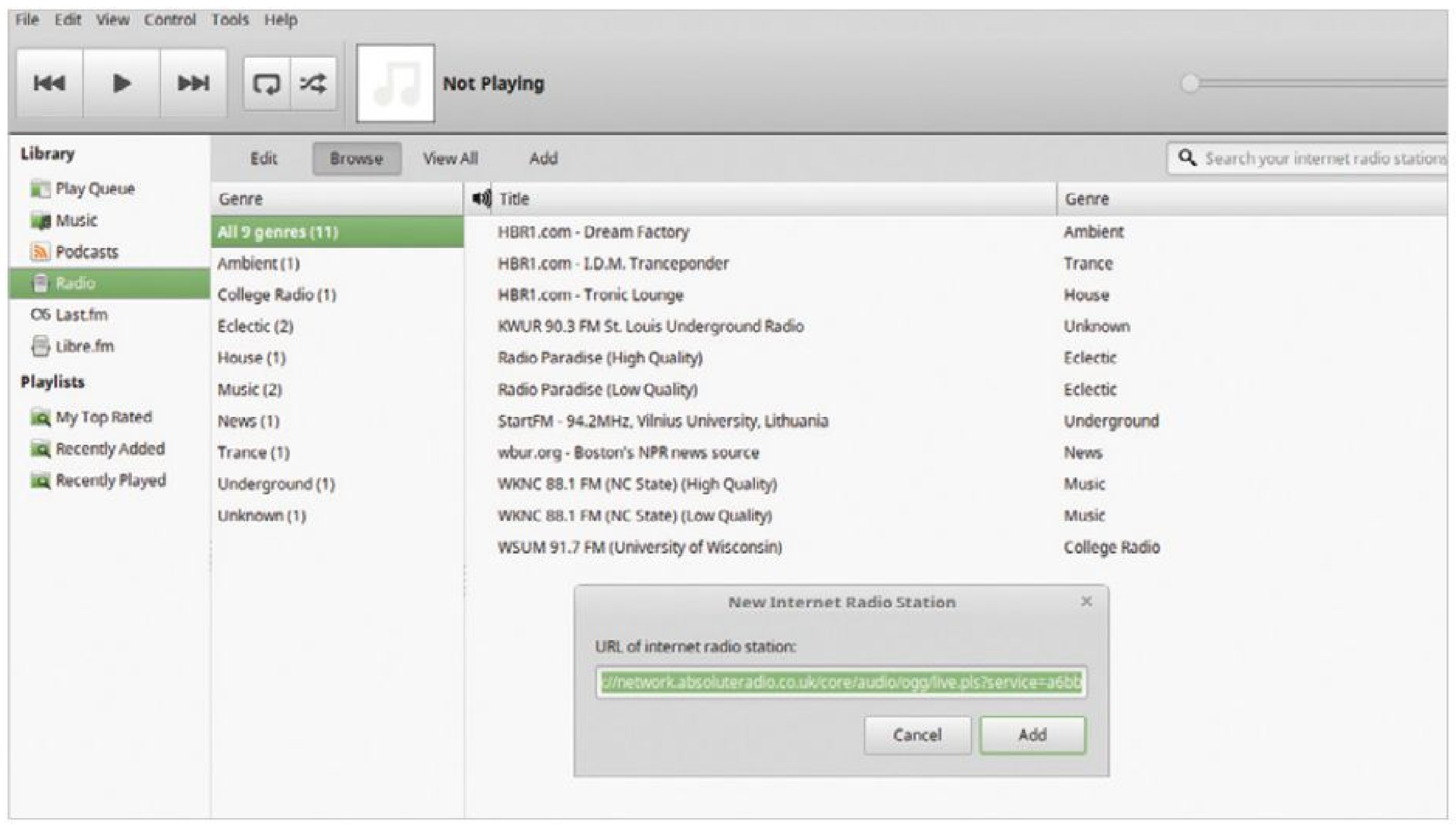
Artist	Album
1 artist (16)	1 album (16)
Bob Marley & The Wailers (16)	Legend (30th Anniversary Deluxe Edition) (16)

Track	Title	Genre	Artist	Album
1	Is this Love	Reggae	Bob Marley & The Wailers	Legend (30
2	No Woman No Cry [Live]	Reggae	Bob Marley & The Wailers	Legend (30
3	Could You Be Loved	Reggae	Bob Marley & The Wailers	Legend (30
4	Three Little Birds	Reggae	Bob Marley & The Wailers	Legend (30
5	Buffalo Soldier	Reggae	Bob Marley & The Wailers	Legend (30
6	Get Up Stand Up	Reggae	Bob Marley & The Wailers	Legend (30
7	Stir It Up	Reggae	Bob Marley & The Wailers	Legend (30
8	Easy Skanking	Reggae	Bob Marley & The Wailers	Legend (30
9	One Love / People Get Ready	Reggae	Bob Marley & The Wailers	Legend (30
10	I Shot the Sheriff	Reggae	Bob Marley & The Wailers	Legend (30
11	Waiting in Vain	Reggae	Bob Marley & The Wailers	Legend (30
12	Redemption Song	Reggae	Bob Marley & The Wailers	Legend (30
13	Satisfy My Soul	Reggae	Bob Marley & The Wailers	Legend (30
14	Exodus	Reggae	Bob Marley & The Wailers	Legend (30
15	Jamming	Reggae	Bob Marley & The Wailers	Legend (30
16	Punky Reggae Party	Reggae	Bob Marley & The Wailers	Legend (30

16 songs, 1 hour and 12 minutes, 179.7 MB

STEP 5

Click the Radio option under the Library heading to the left. This is where you can listen to any Internet radio stations. To add custom radio streams, click Add located under the media controls, then enter the URL of the station. You can find country specific listings and more from around the world. For example, Absolute Radio Classic Rock's URL is: www.network.absoluteradio.co.uk/core/audio/ogg/live.pls?service=a6bb.


File Edit View Control Tools Help
Not Playing
Library
Play Queue
Music
Podcasts
Radio
Last.fm
Libre.fm
Playlists
My Top Rated
Recently Added
Recently Played
Edit
Browse
View All
Add
Search your internet radio stations

Genre
All 9 genres (11)
Ambient (1)
College Radio (1)
Eclectic (2)
House (1)
Music (2)
News (1)
Trance (1)
Underground (1)
Unknown (1)

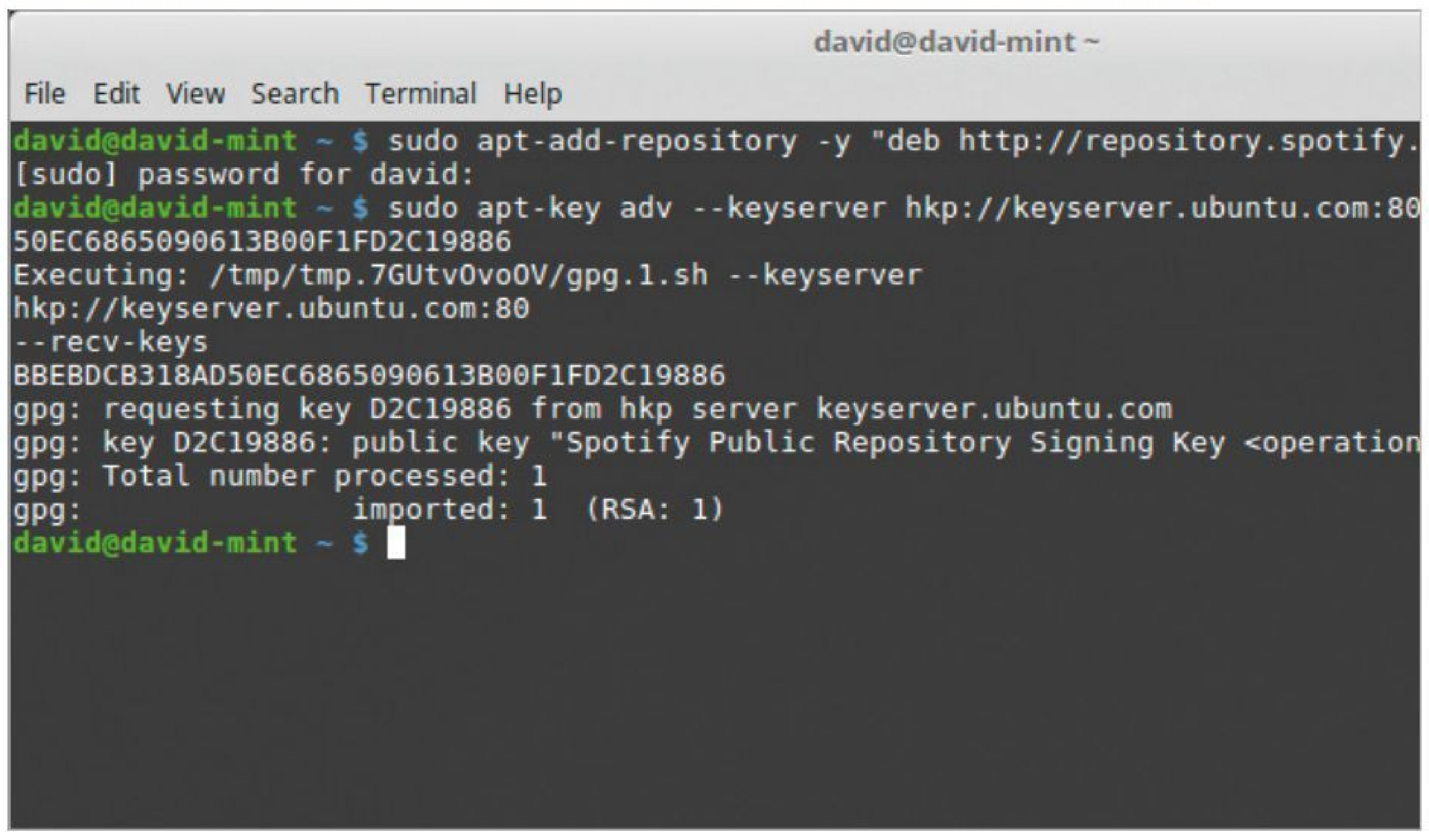
Title	Genre
HBR1.com - Dream Factory	Ambient
HBR1.com - I.D.M. Tranceponder	Trance
HBR1.com - Tronic Lounge	House
KWUR 90.3 FM St. Louis Underground Radio	Unknown
Radio Paradise (High Quality)	Eclectic
Radio Paradise (Low Quality)	Eclectic
StartFM - 94.2MHz, Vilnius University, Lithuania	Underground
wbur.org - Boston's NPR news source	News
WKNC 88.1 FM (NC State) (High Quality)	Music
WKNC 88.1 FM (NC State) (Low Quality)	Music
WSUM 91.7 FM (University of Wisconsin)	College Radio

New Internet Radio Station

URL of internet radio station: ://network.absoluteradio.co.uk/core/audio/ogg/live.pls?service=a6bb

STEP 6

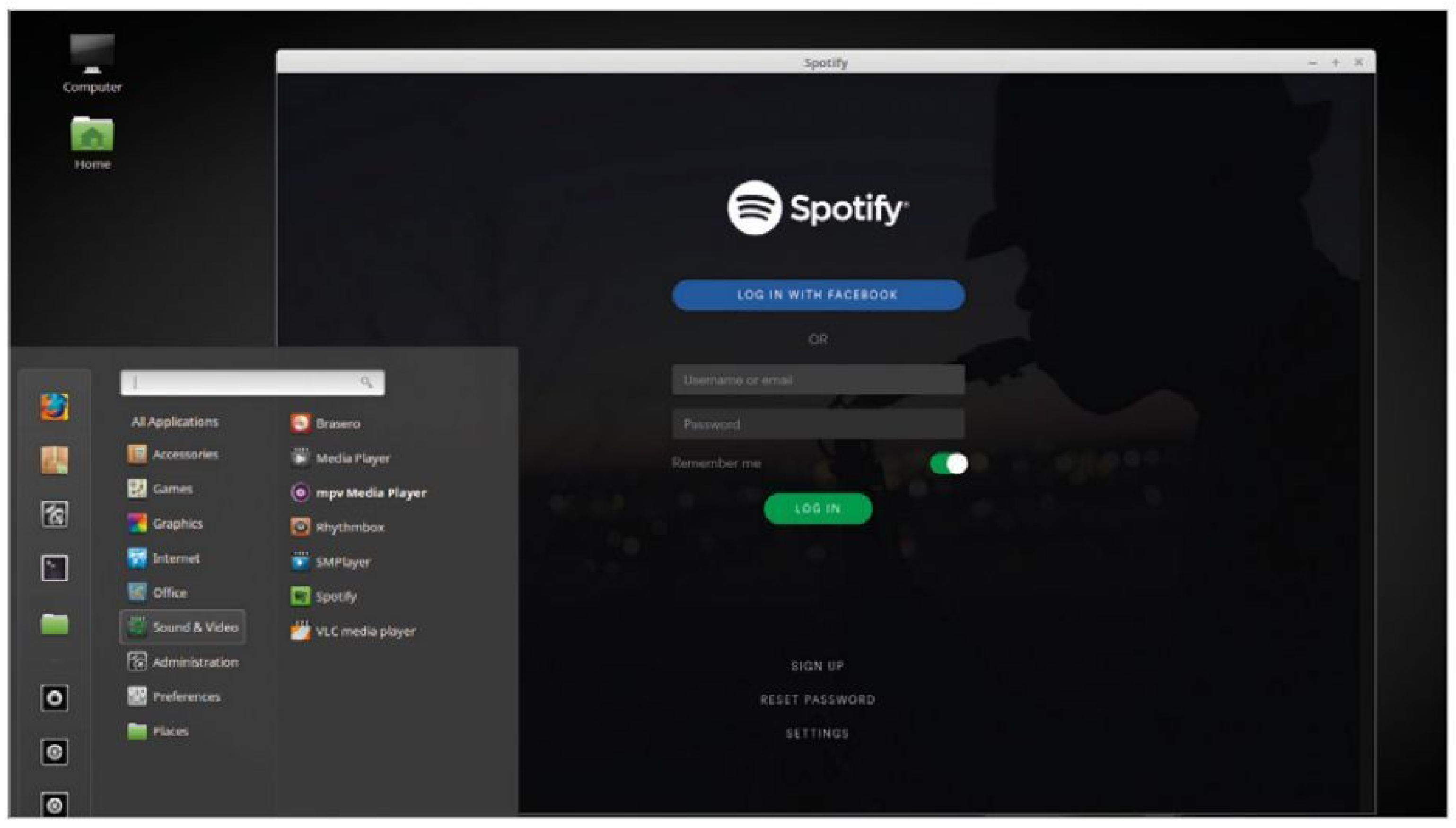
For those who have a Spotify account, you can install the Spotify client by opening the Terminal and typing: `sudo apt-add-repository -y "deb http://repository.spotify.com stable non-free"`, followed by: `sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv-keys BBEBDCB318AD50EC6865090613B00F1FD2C19886`.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ sudo apt-add-repository -y "deb http://repository.spotify.
[sudo] password for david:
david@david-mint ~ $ sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80
50EC6865090613B00F1FD2C19886
Executing: /tmp/tmp.7GUtvOvoOV/gpg.1.sh --keyserver
hkp://keyserver.ubuntu.com:80
--recv-keys
BBEBDCB318AD50EC6865090613B00F1FD2C19886
gpg: requesting key D2C19886 from hkp server keyserver.ubuntu.com
gpg: key D2C19886: public key "Spotify Public Repository Signing Key <operation
gpg: Total number processed: 1
gpg:               imported: 1  (RSA: 1)
david@david-mint ~ $ 
```

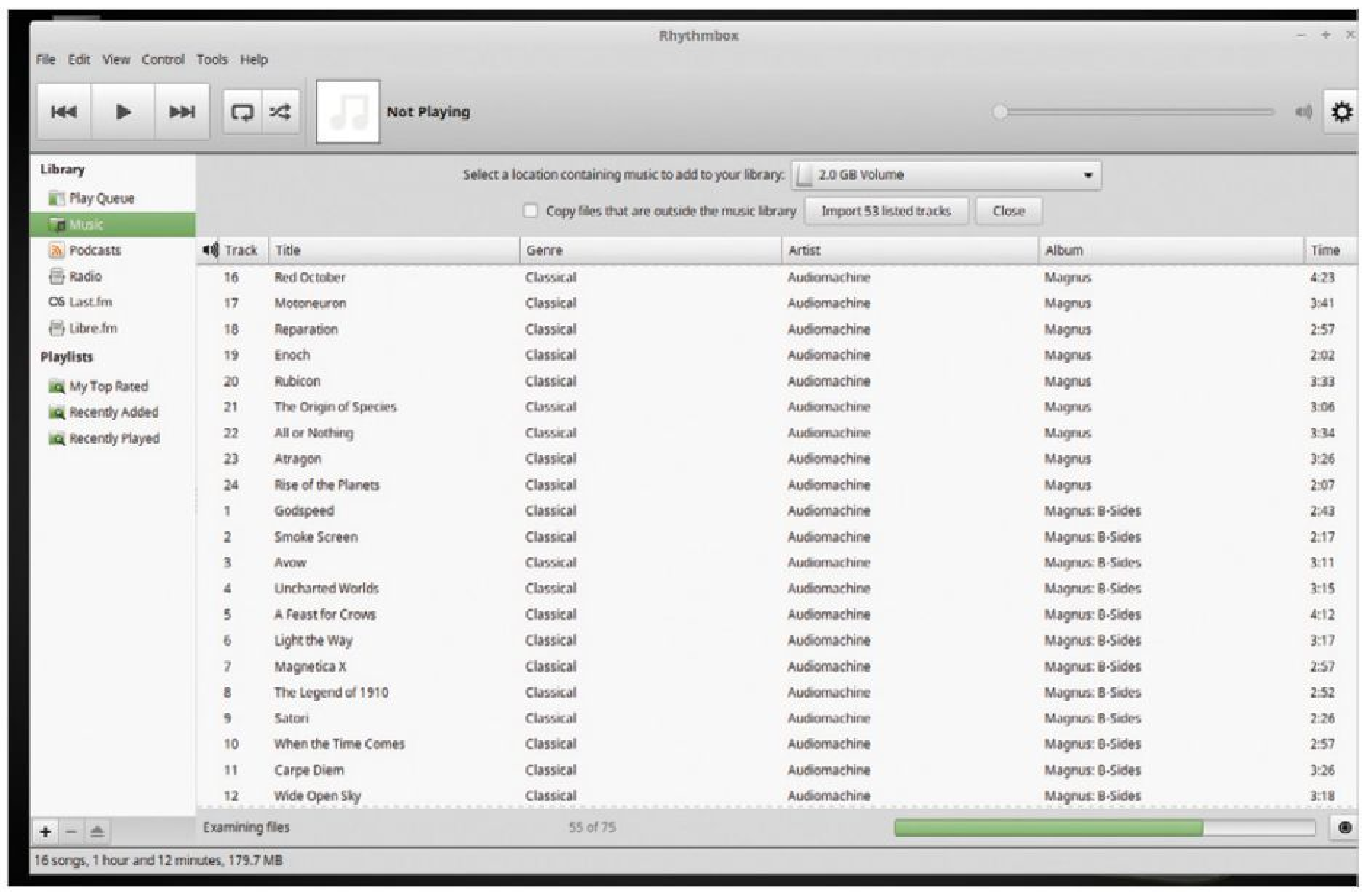
STEP 7

The previous commands have added the repo and the key to access and authenticate the packages; Spotify in this case. You now need to update the information with: `sudo apt-get update`, and when that's done install Spotify with: `sudo apt-get install spotify-client`. You can now run Spotify from the Menu > Sound & Vision.


Computer
Home
Spotify
Spotify
LOG IN WITH FACEBOOK
OR
Username or email
Password
Remember me
LOG IN
SIGN UP
RESET PASSWORD
SETTINGS
All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Brasero
Media Player
mpv Media Player
Rhythmbox
SMPlayer
Spotify
VLC media player

STEP 8

You can also attach and transfer music to and from an MP3 player. Hook the MP3 player up to the computer's USB port, open Rhythmbox and click on File > Add Music. From the 'Select a location containing music...' drop-down box, choose the MP3 player to begin the import.


Rhythmbox
File Edit View Control Tools Help
Not Playing
Library
Play Queue
Music
Podcasts
Radio
Last.fm
Libre.fm
Playlists
My Top Rated
Recently Added
Recently Played

Select a location containing music to add to your library: 2.0 GB Volume

☐ Copy files that are outside the music library

Import 53 listed tracks
Close

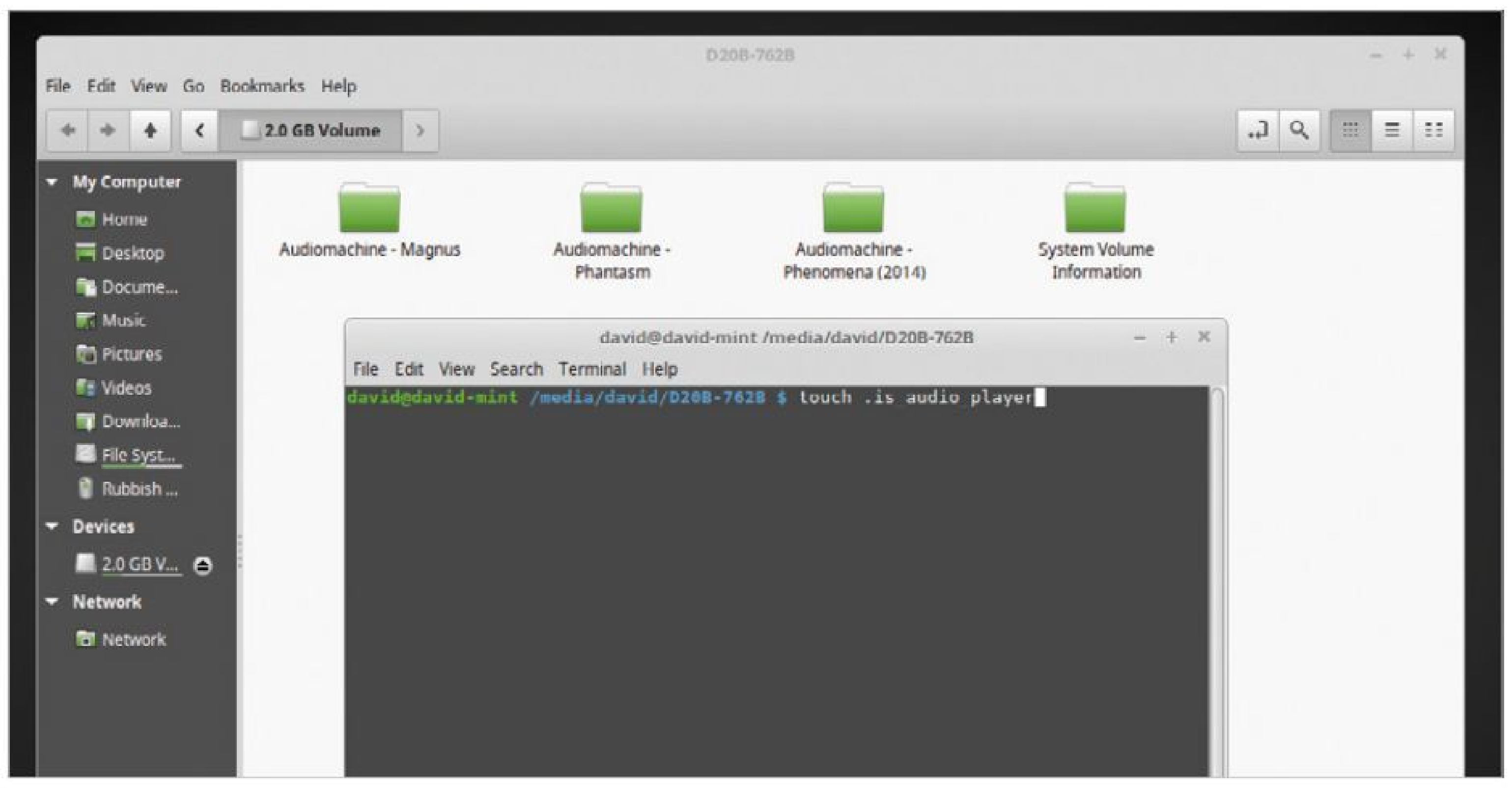
Track	Title	Genre	Artist	Album	Time
16	Red October	Classical	Audiomachine	Magnus	4:23
17	Motoneuron	Classical	Audiomachine	Magnus	3:41
18	Reparation	Classical	Audiomachine	Magnus	2:57
19	Enoch	Classical	Audiomachine	Magnus	2:02
20	Rubicon	Classical	Audiomachine	Magnus	3:33
21	The Origin of Species	Classical	Audiomachine	Magnus	3:06
22	All or Nothing	Classical	Audiomachine	Magnus	3:34
23	Atragon	Classical	Audiomachine	Magnus	3:26
24	Rise of the Planets	Classical	Audiomachine	Magnus	2:07
1	Godspeed	Classical	Audiomachine	Magnus: B-Sides	2:43
2	Smoke Screen	Classical	Audiomachine	Magnus: B-Sides	2:17
3	Avow	Classical	Audiomachine	Magnus: B-Sides	3:11
4	Uncharted Worlds	Classical	Audiomachine	Magnus: B-Sides	3:15
5	A Feast for Crows	Classical	Audiomachine	Magnus: B-Sides	4:12
6	Light the Way	Classical	Audiomachine	Magnus: B-Sides	3:17
7	Magnetica X	Classical	Audiomachine	Magnus: B-Sides	2:57
8	The Legend of 1910	Classical	Audiomachine	Magnus: B-Sides	2:52
9	Satori	Classical	Audiomachine	Magnus: B-Sides	2:26
10	When the Time Comes	Classical	Audiomachine	Magnus: B-Sides	2:57
11	Carpe Diem	Classical	Audiomachine	Magnus: B-Sides	3:26
12	Wide Open Sky	Classical	Audiomachine	Magnus: B-Sides	3:18

Examining files 55 of 75

16 songs, 1 hour and 12 minutes, 179.7 MB

STEP 9

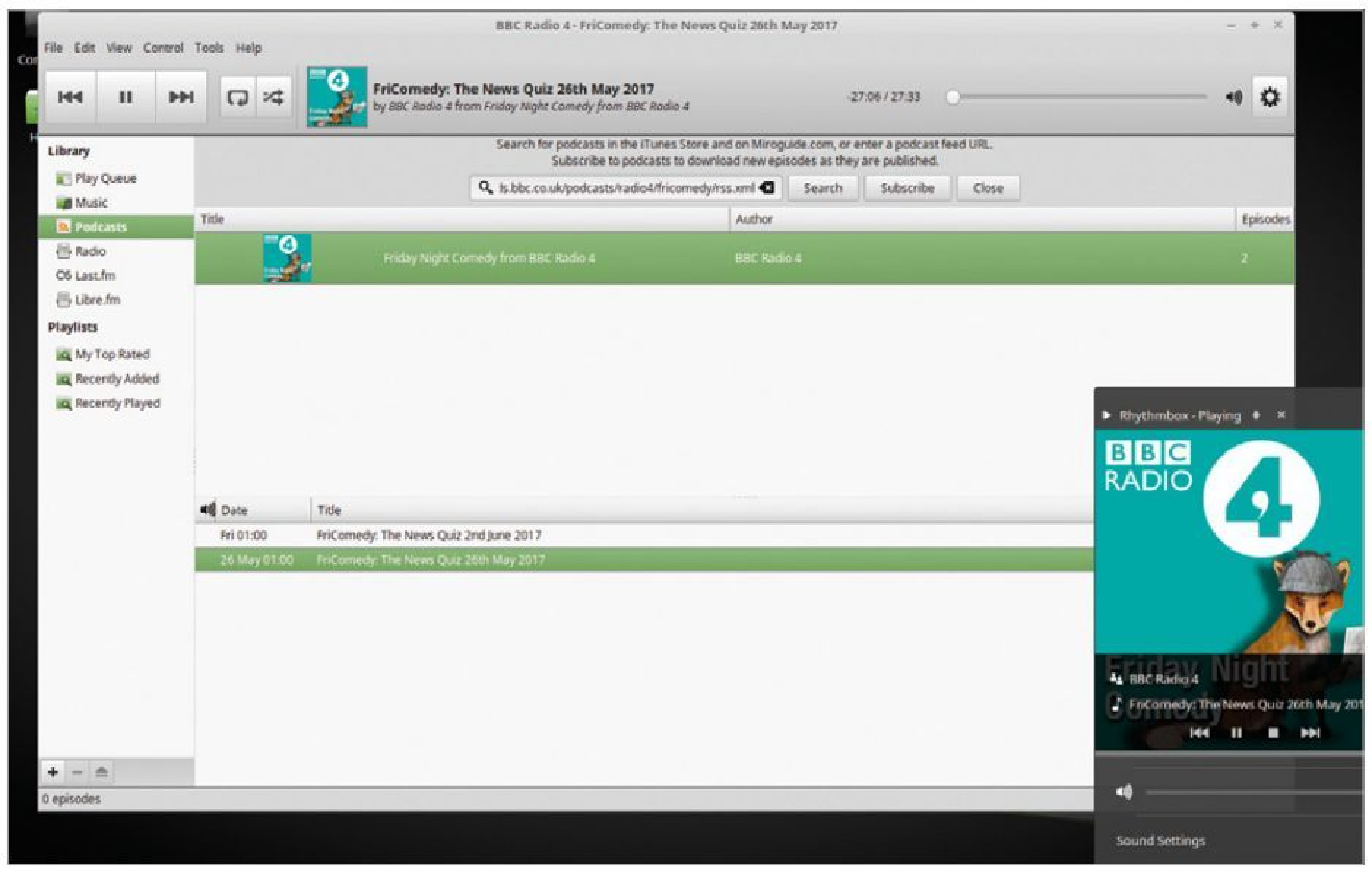
If for some reason the MP3 player isn't being recognised in Rhythmbox you can force it by opening the MP3 player's folder in Nemo, right-clicking in the main folder view and selecting Open in Terminal. Once in the Terminal, enter: `touch .is_audio_player`. Unplug and reattach the MP3 player, and it should appear in Rhythmbox as a music device.


D20B-762B
File Edit View Go Bookmarks Help
2.0 GB Volume
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Devices
2.0 GB V...
Network
Network
Audiomachine - Magnus
Audiomachine - Phantasm
Audiomachine - Phenomena (2014)
System Volume Information
david@david-mint /media/david/D20B-762B
File Edit View Search Terminal Help

```
david@david-mint /media/david/D20B-762B $ touch .is audio player
```

STEP 10

You can also listen to Podcasts via Rhythmbox. Click the Podcast link in the left-hand panel and enter the URL of the Podcast; for example a BBC Podcast can be found at: www.downloads.bbc.co.uk/podcasts/radio4/fricomedy/rss.xml. You can then click the Subscribe button or double-click the Podcast contents to start playing.


BBC Radio 4 - FriComedy: The News Quiz 26th May 2017
File Edit View Control Tools Help
FriComedy: The News Quiz 26th May 2017
by BBC Radio 4 from Friday Night Comedy from BBC Radio 4
-27:06 / 27:33
Library
Play Queue
Music
Podcasts
Radio
Last.fm
Libre.fm
Playlists
My Top Rated
Recently Added
Recently Played

Search for podcasts in the iTunes Store and on Miroguide.com, or enter a podcast feed URL.
Subscribe to podcasts to download new episodes as they are published.

ls.bbc.co.uk/podcasts/radio4/fricomedy/rss.xml

Search
Subscribe
Close

Title	Author	Episodes
Friday Night Comedy from BBC Radio 4	BBC Radio 4	2

Date	Title
Fri 01:00	FriComedy: The News Quiz 2nd June 2017
26 May 01:00	FriComedy: The News Quiz 26th May 2017

0 episodes

Rhythmbox - Playing
BBC RADIO 4
Friday Night Comedy
BBC Radio 4
FriComedy: The News Quiz 26th May 201
Sound Settings

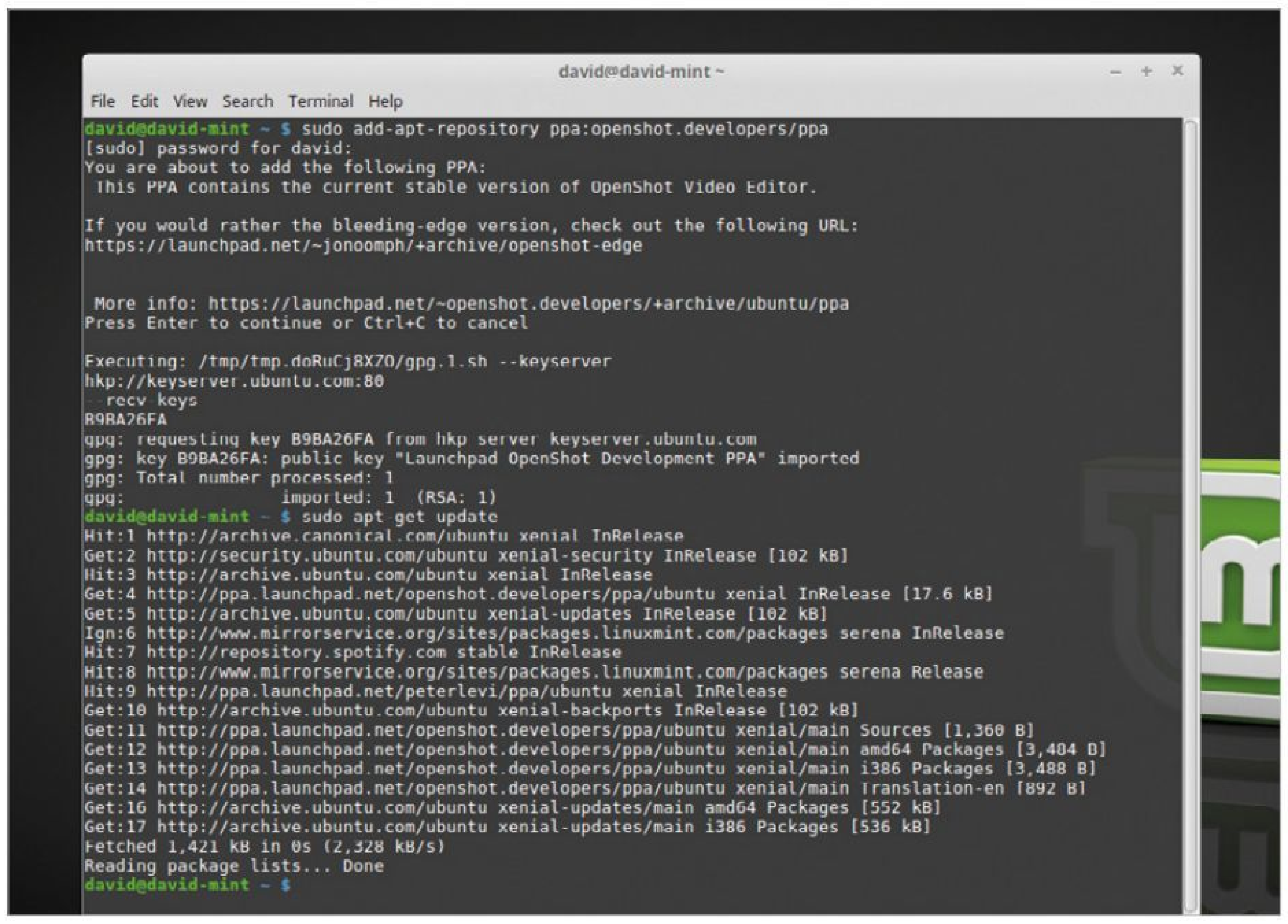
Video Editing in Linux Mint

Linux users are spoilt for choice when it comes to video editing software. Windows and Mac users may be well versed in Windows Movie Maker and iMovie but the Linux Mint user has quite a selection to choose from.

LIGHTS, CAMERA, ACTION

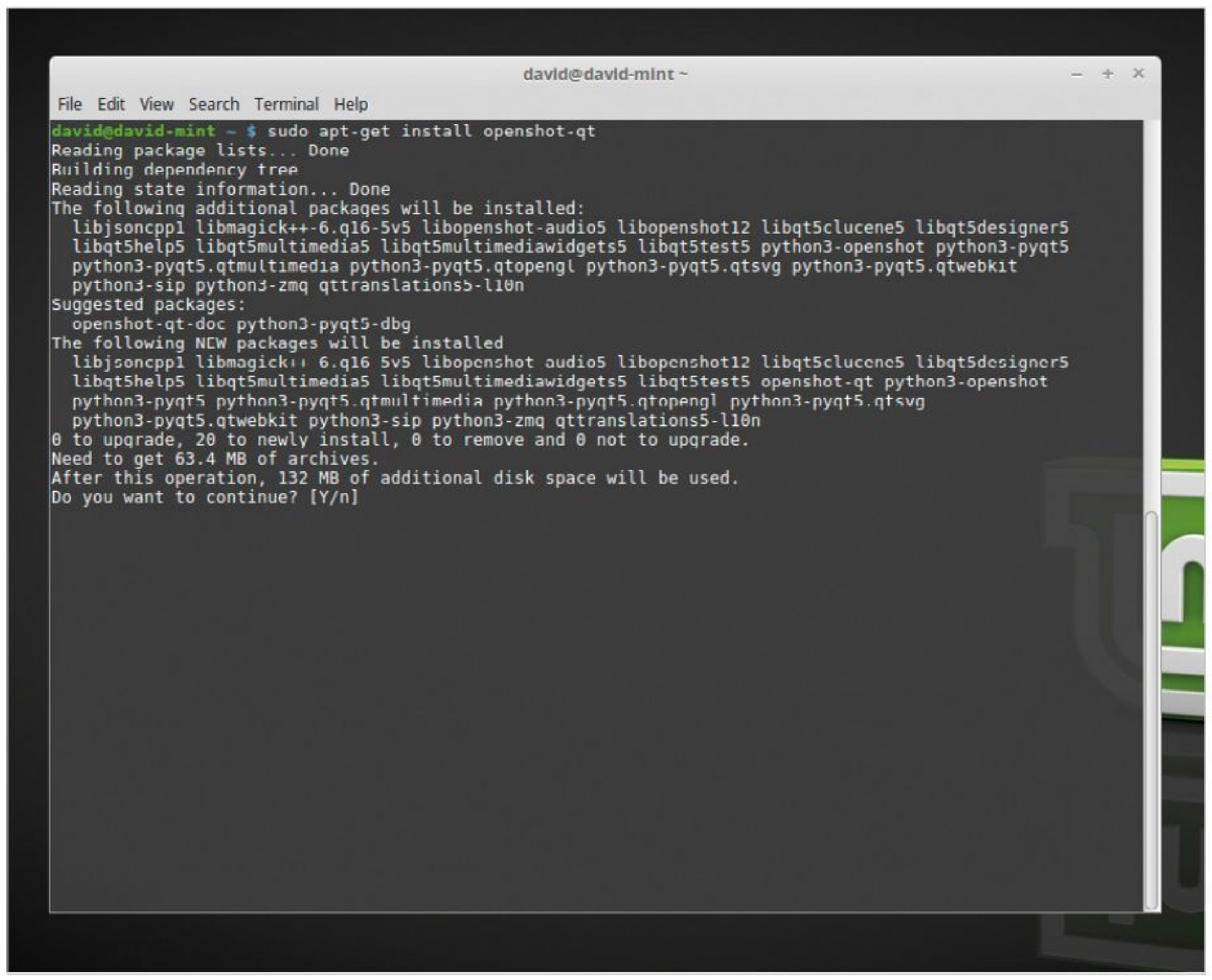
OpenShot is one of the best free, open source video editors available for Mint or Linux in general. You can create stop motion videos, add transitions, subtitles and many different effects.

STEP 1 To begin with, you need to add the OpenShot repo, where the installation files are held. In the Terminal, enter: `sudo add-apt-repository ppa:openshot.developers/ppa`. When the repo has been added, update the system with: `sudo apt-get update`.


david@david-mint ~
File Edit View Search Terminal Help

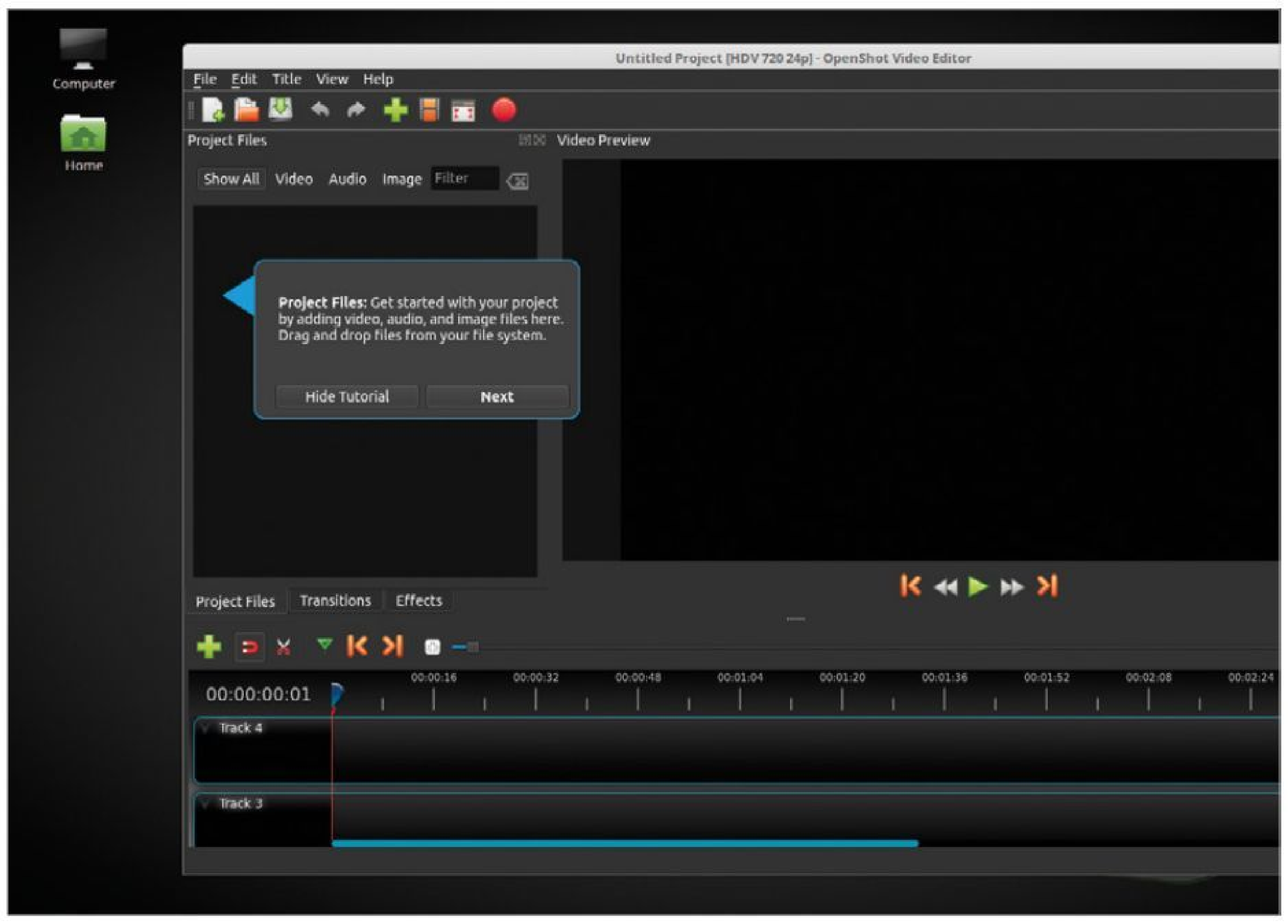
```
david@david-mint ~ $ sudo add-apt-repository ppa:openshot.developers/ppa
[sudo] password for david:
You are about to add the following PPA:
 This PPA contains the current stable version of OpenShot Video Editor.

If you would rather the bleeding-edge version, check out the following URL:
https://launchpad.net/~jonoomph/+archive/openshot-edge


 More info: https://launchpad.net/~openshot.developers/+archive/ubuntu/ppa
Press Enter to continue or Ctrl+C to cancel

Executing: /tmp/tmp.doRuCj8X70/gpg.1.sh --keyserver
hkp://keyserver.ubuntu.com:80
--recv-keys
B9BA26FA
gpg: requesting key B9BA26FA from hkp server keyserver.ubuntu.com
gpg: key B9BA26FA: public key "Launchpad OpenShot Development PPA" imported
gpg: Total number processed: 1
gpg:               imported: 1  (RSA: 1)
david@david-mint ~ $ sudo apt get update
Hit:1 http://archive.canonical.com/ubuntu xenial InRelease
Get:2 http://security.ubuntu.com/ubuntu xenial-security InRelease [102 kB]
Hit:3 http://archive.ubuntu.com/ubuntu xenial InRelease
Get:4 http://ppa.launchpad.net/openshot.developers/ppa/ubuntu xenial InRelease [17.6 kB]
Get:5 http://archive.ubuntu.com/ubuntu xenial-updates InRelease [102 kB]
Ign:6 http://www.mirrorservice.org/sites/packages.linuxmint.com/packages serena InRelease
Hit:7 http://repository.spotify.com stable InRelease
Hit:8 http://www.mirrorservice.org/sites/packages.linuxmint.com/packages serena Release
Hit:9 http://ppa.launchpad.net/peterlevi/ppa/ubuntu xenial InRelease
Get:10 http://archive.ubuntu.com/ubuntu xenial-backports InRelease [102 kB]
Get:11 http://ppa.launchpad.net/openshot.developers/ppa/ubuntu xenial/main Sources [1,360 B]
Get:12 http://ppa.launchpad.net/openshot.developers/ppa/ubuntu xenial/main amd64 Packages [3,404 B]
Get:13 http://ppa.launchpad.net/openshot.developers/ppa/ubuntu xenial/main i386 Packages [3,488 B]
Get:14 http://ppa.launchpad.net/openshot.developers/ppa/ubuntu xenial/main Translation-en [892 B]
Get:16 http://archive.ubuntu.com/ubuntu xenial-updates/main amd64 Packages [552 kB]
Get:17 http://archive.ubuntu.com/ubuntu xenial-updates/main i386 Packages [536 kB]
Fetched 1,421 kB in 0s (2,328 kB/s)
Reading package lists... Done
david@david-mint ~ $
```

STEP 2 Now we can install OpenShot with: `sudo apt-get install openshot-qt`. Press 'y' to confirm the installation and continue. Once the installation is complete, you can launch OpenShot Video Editor from the Menu > Sound & Video section.


david@david-mint ~
File Edit View Search Terminal Help

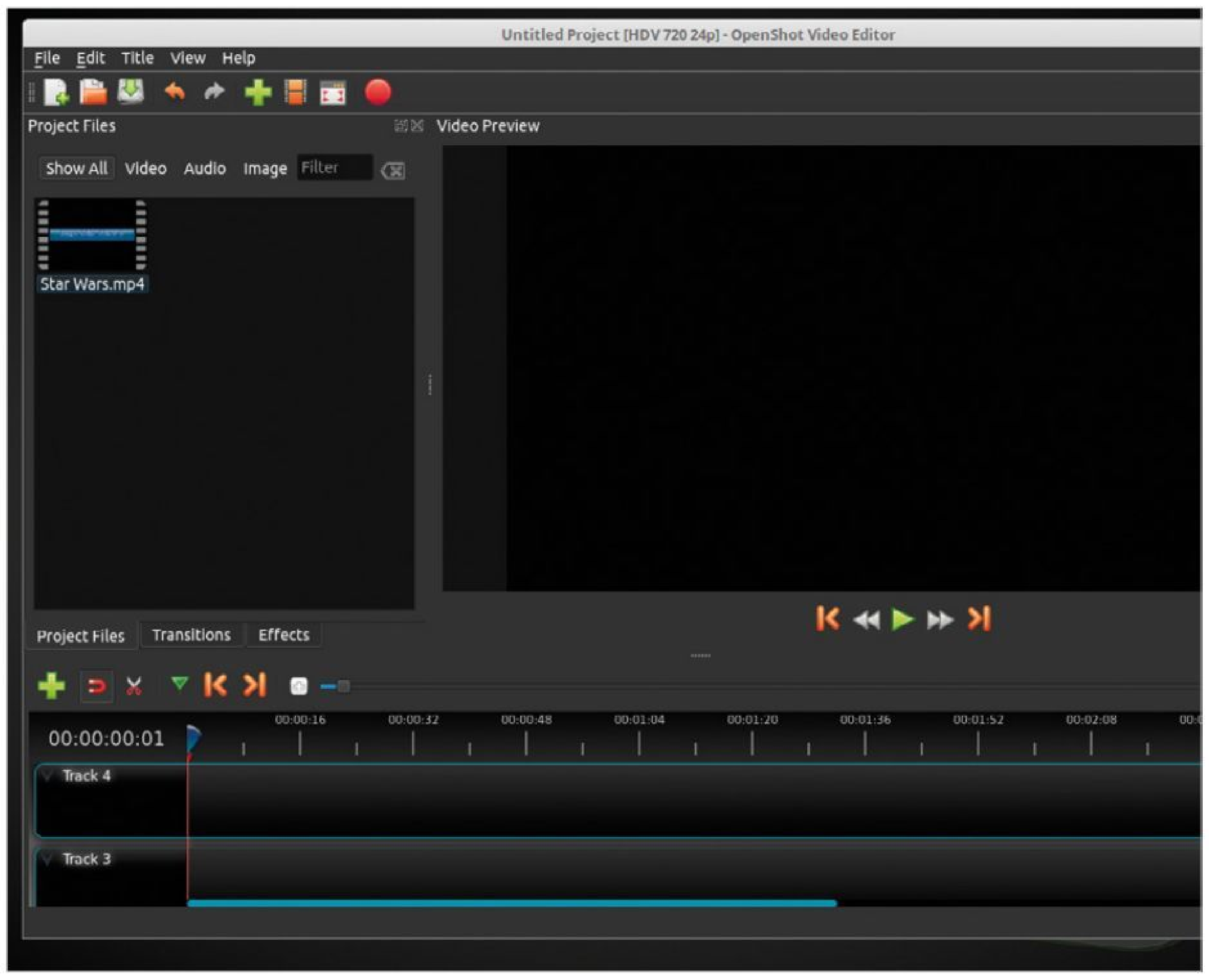
```
david@david-mint ~ $ sudo apt-get install openshot-qt
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libjsoncpp1 libmagick++-6.q16-5v5 libopenshot-audio5 libopenshot12 libqt5clucene5 libqt5designer5
  libqt5help5 libqt5multimedia5 libqt5multimediawidgets5 libqt5test5 python3-openshot python3-pyqt5
  python3-pyqt5.qtmultimedia python3-pyqt5.qtopengl python3-pyqt5.qtsvg python3-pyqt5.qtwebkit
  python3-sip python3-zmq qttranslations5-l10n
Suggested packages:
  openshot-qt-doc python3-pyqt5-dbg
The following NEW packages will be installed
  libjsoncpp1 libmagick++-6.q16-5v5 libopenshot-audio5 libopenshot12 libqt5clucene5 libqt5designer5
  libqt5help5 libqt5multimedia5 libqt5multimediawidgets5 libqt5test5 openshot-qt python3-openshot
  python3-pyqt5 python3-pyqt5.qtmultimedia python3-pyqt5.qtopengl python3-pyqt5.qtsvg
  python3-pyqt5.qtwebkit python3-sip python3-zmq qttranslations5-l10n
0 to upgrade, 20 to newly install, 0 to remove and 0 not to upgrade.
Need to get 63.4 MB of archives.
After this operation, 132 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

STEP 3 OpenShot is a non-linear video editor, meaning any frame can be accessed at any time, and video can be layered and mixed in a variety of creative ways. The screen is split into sections: the Timeline at the bottom, Project Files to the side and a Video Preview dominating the upper area.


Computer
Home
Untitled Project [HDV 720 24p] - OpenShot Video Editor
File Edit Title View Help
Project Files
Video Preview
Show All Video Audio Image Filter
Hide Tutorial
Next
Project Files Transitions Effects
00:00:00:01
Track 4
Track 3

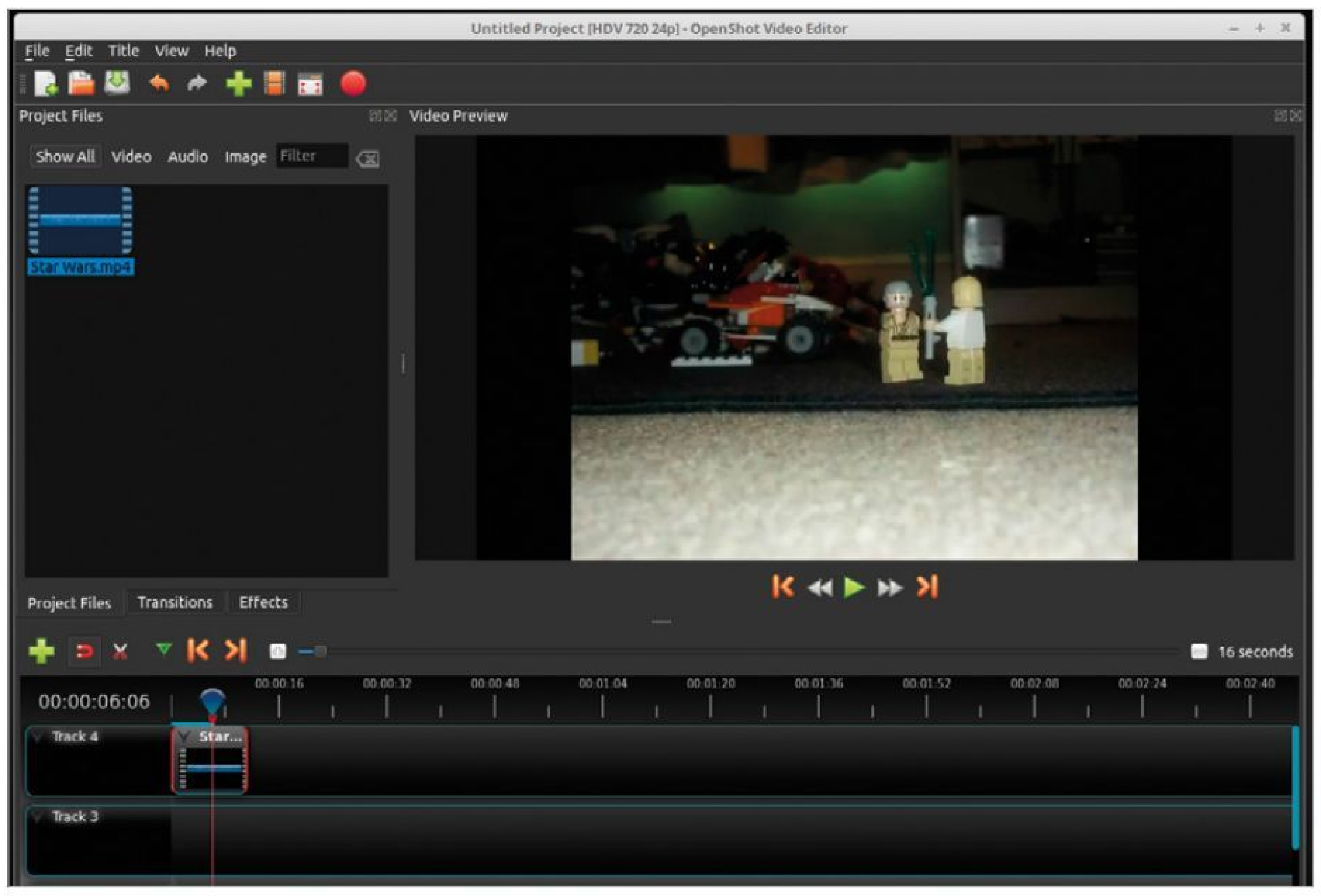
Project Files: Get started with your project by adding video, audio, and image files here. Drag and drop files from your file system.

STEP 4 You can easily import photos or videos by clicking on the Plus symbol in the top toolbar. The imported item will be placed in the Project Files section and can be filtered into Videos, Audio and Images.


Untitled Project [HDV 720 24p] - OpenShot Video Editor
File Edit Title View Help
Project Files
Video Preview
Show All Video Audio Image Filter
Star Wars.mp4
Project Files Transitions Effects
00:00:00:01
Track 4
Track 3

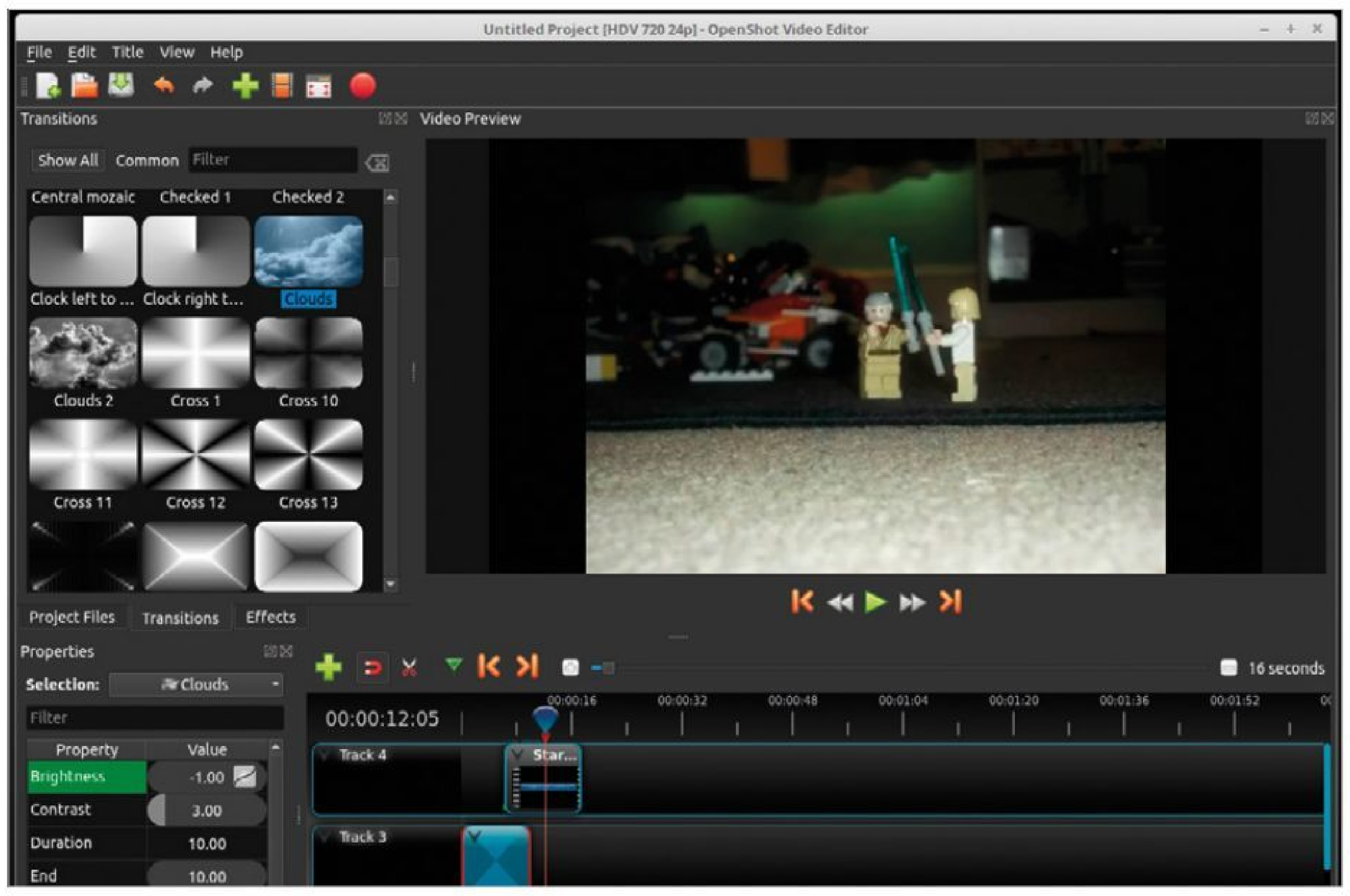
STEP 5

All the content you add to the Project Files can be dragged and dropped into the Timeline section at the bottom of the screen. This is where you eventually combine images, sections of video and audio streams, some effects, and music into the final video.


Untitled Project [HDV 720 24p] - OpenShot Video Editor
File Edit Title View Help
Project Files
Video Preview
Show All Video Audio Image Filter
Star Wars.mp4
Project Files Transitions Effects
16 seconds
00:00:06:06
Track 4
Track 3

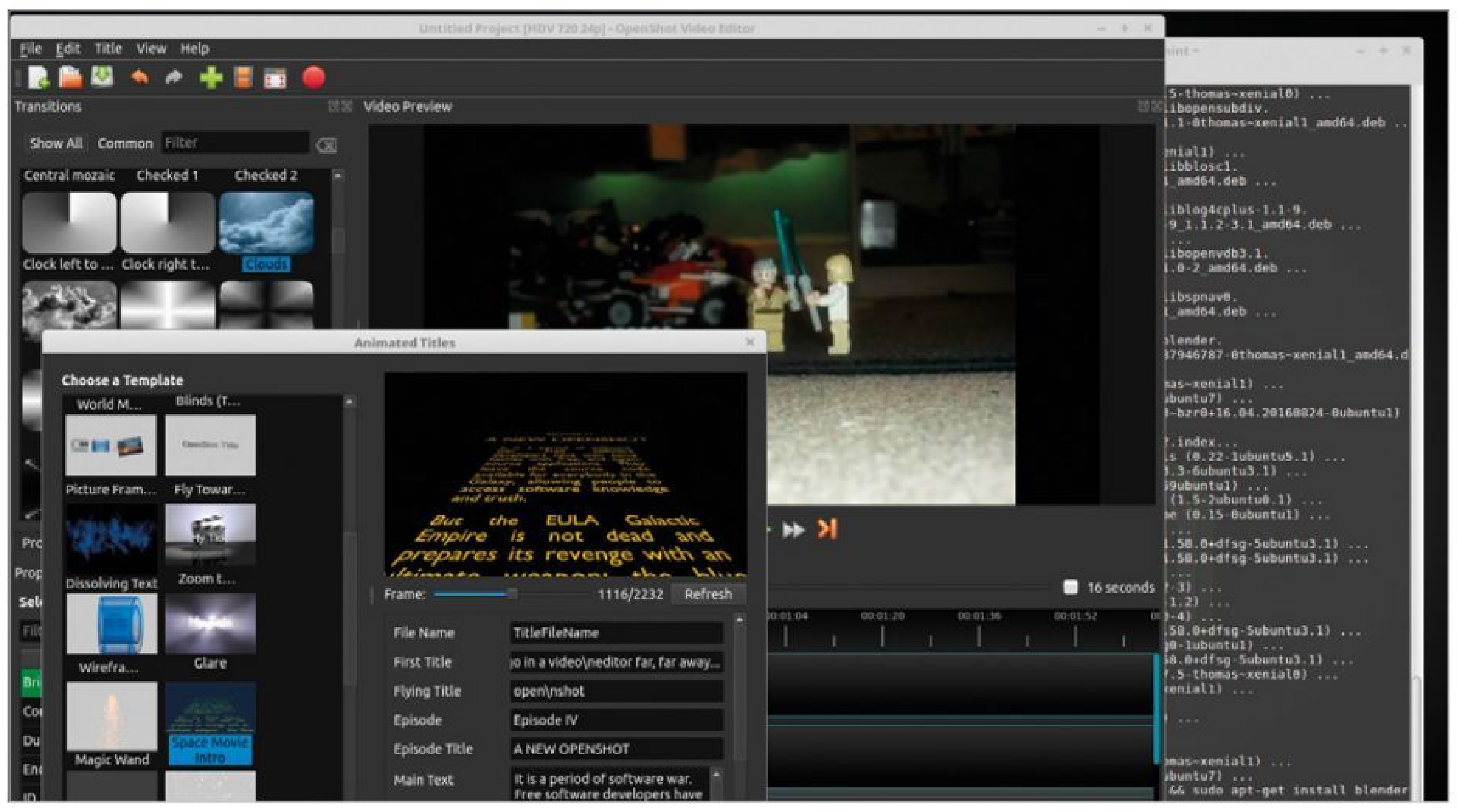
STEP 6

By clicking on the Transitions tab, under the Project Files section, you can choose from many different transitional effects. Simply add the desired effect into the timeline, moving the other timeline events around accordingly to fit.


Untitled Project [HDV 720 24p] - OpenShot Video Editor
File Edit Title View Help
Transitions
Video Preview
Show All Common Filter
Central mozaic Checked 1 Checked 2
Clock left to ... Clock right t... Clouds
Clouds 2 Cross 1 Cross 10
Cross 11 Cross 12 Cross 13
Project Files Transitions Effects
Properties
Selection: Clouds
Property Value
Brightness -1.00
Contrast 3.00
Duration 10.00
End 10.00
00:00:12:05
16 seconds
Track 4
Track 3

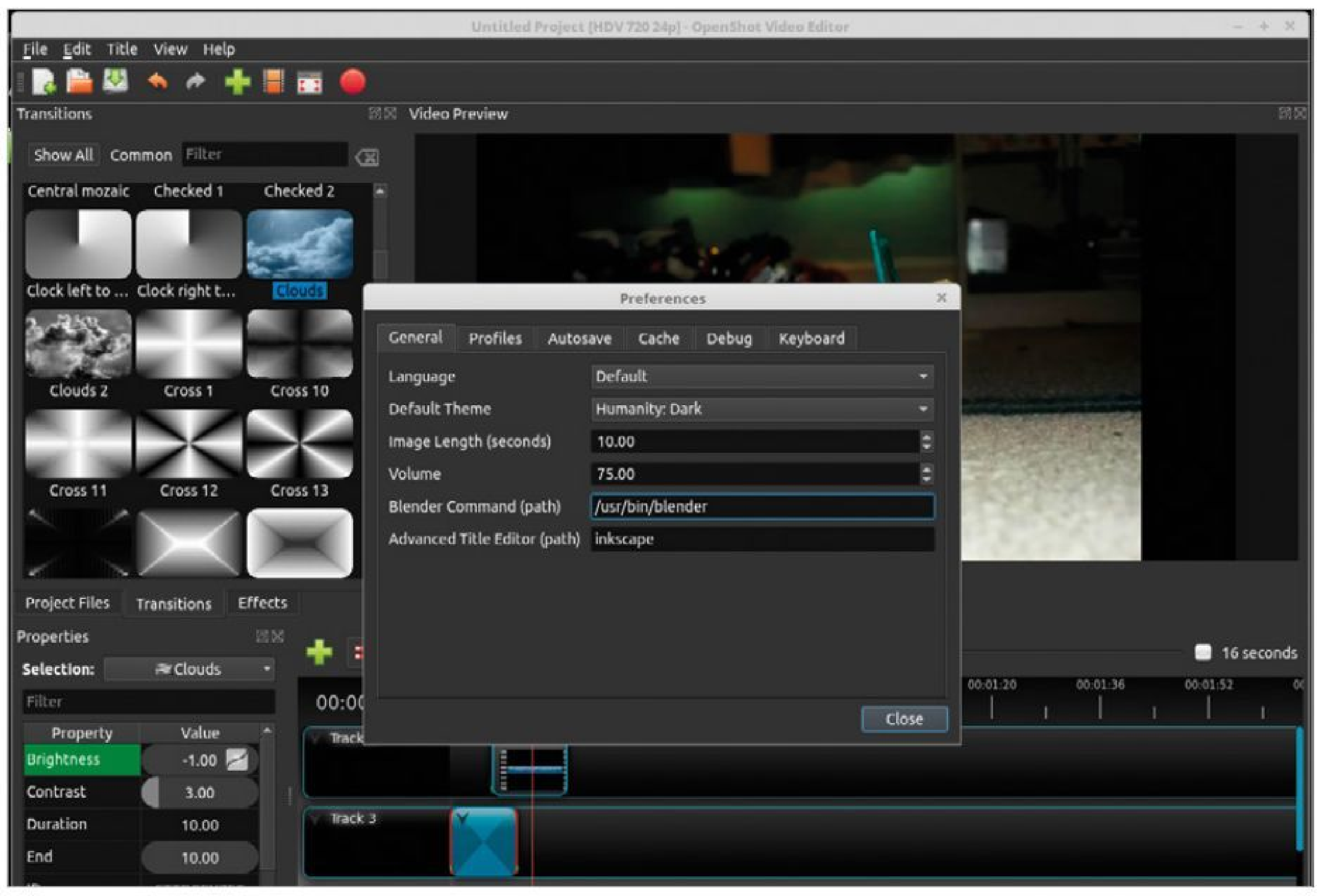
STEP 7

Titles can also be added. From the Menu Bar choose Title, then opt for either a static Title or an Animated Title. Animated Titles will require you to install Blender, a 3D graphics app. To do this, drop into a Terminal and enter: `sudo add-apt-repository ppa:thomas-schiex/blender`, then: `sudo apt-get update && sudo apt-get install blender`.


Untitled Project [HDV 720 24p] - OpenShot Video Editor
Animated Titles
Choose a Template
World M... Blinds (T...
Picture Fram... Fly Towar...
Dissolving Text Zoom t...
Wirefra... Glare
Magic Wand Space Movie Intro
Frame: 1116/2232 Refresh
File Name TitleFileName
First Title
Flying Title openshot
Episode Episode IV
Episode Title A NEW OPENSHOT
Main Text It is a period of software war. Free software developers have

STEP 8

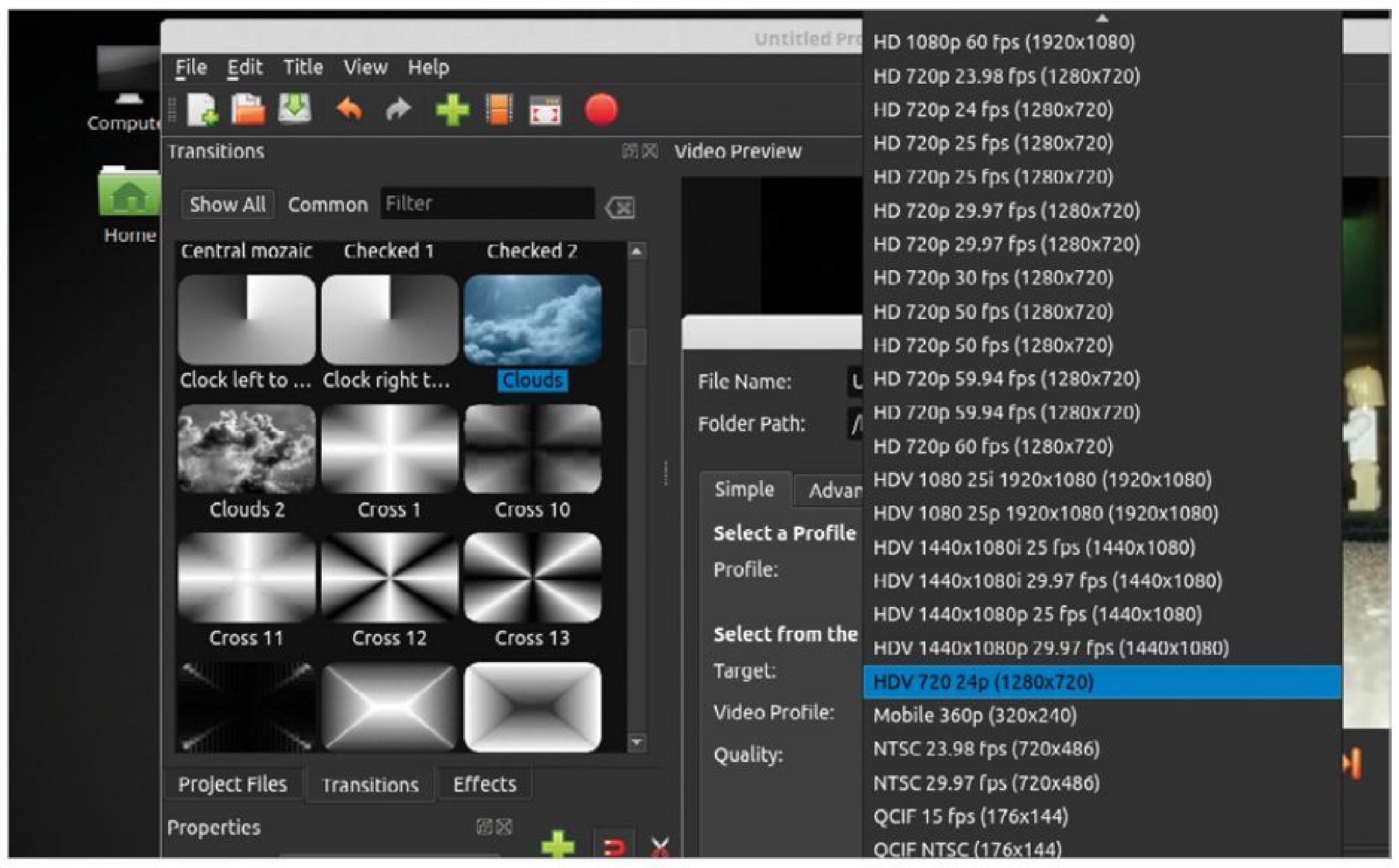
Sometimes using Animated Titles doesn't recognise the installed Blender. You need to change the Blender command path for it to work. In the Menu Bar open Edit > Preferences, and change the 'Blender Command (Path)' option to read: /usr/bin/blender.


Untitled Project [HDV 720 24p] - OpenShot Video Editor
Preferences
General Profiles Autosave Cache Debug Keyboard
Close

Language: Default
Default Theme: Humanity: Dark
Image Length (seconds): 10.00
Volume: 75.00
Blender Command (path): /usr/bin/blender
Advanced Title Editor (path): inkscape

STEP 9

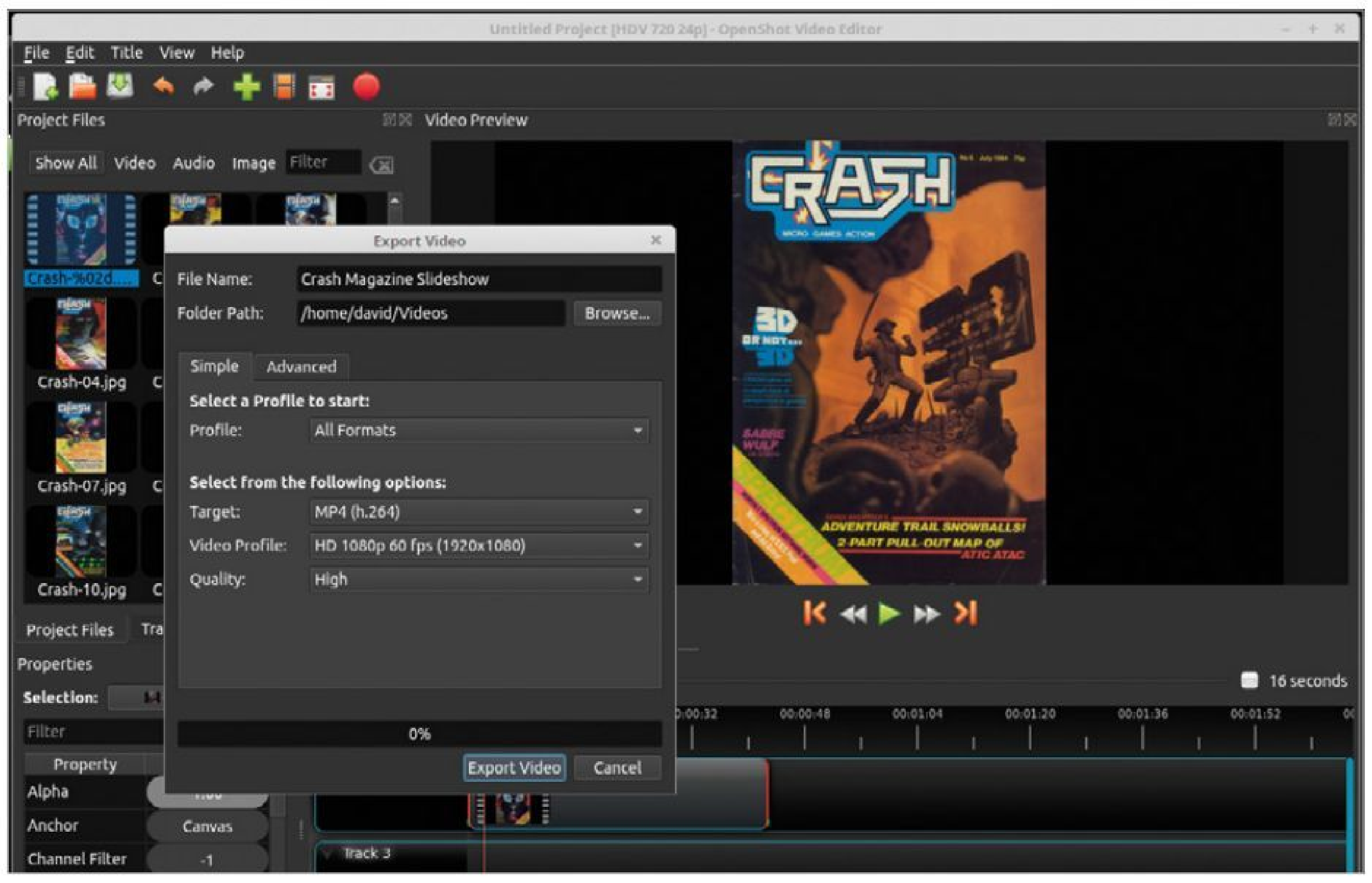
When you're ready to save and share your video, click on the red circle icon in the top toolbar, to Export it to a selected file format. You have numerous profiles to choose from: Blu-Ray, DVD, Device or Web, with a vast selection of target resolutions and frames per second.


File Edit Title View Help
Transitions
Video Preview
Show All Common Filter
Central mozaic Checked 1 Checked 2
Clock left to ... Clock right t... Clouds
Clouds 2 Cross 1 Cross 10
Cross 11 Cross 12 Cross 13
Project Files Transitions Effects
Properties
File Name:
Folder Path:
Simple Advan
Select a Profile
Profile:
Select from the
Target:
Video Profile:
Quality:

HD 1080p 60 fps (1920x1080)
HD 720p 23.98 fps (1280x720)
HD 720p 24 fps (1280x720)
HD 720p 25 fps (1280x720)
HD 720p 25 fps (1280x720)
HD 720p 29.97 fps (1280x720)
HD 720p 29.97 fps (1280x720)
HD 720p 30 fps (1280x720)
HD 720p 50 fps (1280x720)
HD 720p 50 fps (1280x720)
HD 720p 59.94 fps (1280x720)
HD 720p 59.94 fps (1280x720)
HD 720p 60 fps (1280x720)
HDV 1080 25i 1920x1080 (1920x1080)
HDV 1080 25p 1920x1080 (1920x1080)
HDV 1440x1080i 25 fps (1440x1080)
HDV 1440x1080i 29.97 fps (1440x1080)
HDV 1440x1080p 25 fps (1440x1080)
HDV 1440x1080p 29.97 fps (1440x1080)
HDV 720 24p (1280x720)
Mobile 360p (320x240)
NTSC 23.98 fps (720x486)
NTSC 29.97 fps (720x486)
QCIF 15 fps (176x144)
QCIF NTSC (176x144)

STEP 10

Multiple images in a sequence can be added to a Project File and automatically placed as an in-sequence video. Drop this into your timeline, right-click the timeline video and select Time, and slow down the sequence to enjoy the video.


Untitled Project [HDV 720 24p] - OpenShot Video Editor
File Edit Title View Help
Project Files
Video Preview
Show All Video Audio Image Filter
Crash-04.jpg
Crash-07.jpg
Crash-10.jpg
Export Video
Simple Advanced
0%
Export Video Cancel
16 seconds
Properties
Selection:
Property
Alpha
Anchor Canvas
Channel Filter -1
Track 3

File Name: Crash Magazine Slideshow
Folder Path: /home/david/Videos
Select a Profile to start:
Profile: All Formats
Select from the following options:
Target: MP4 (h.264)
Video Profile: HD 1080p 60 fps (1920x1080)
Quality: High

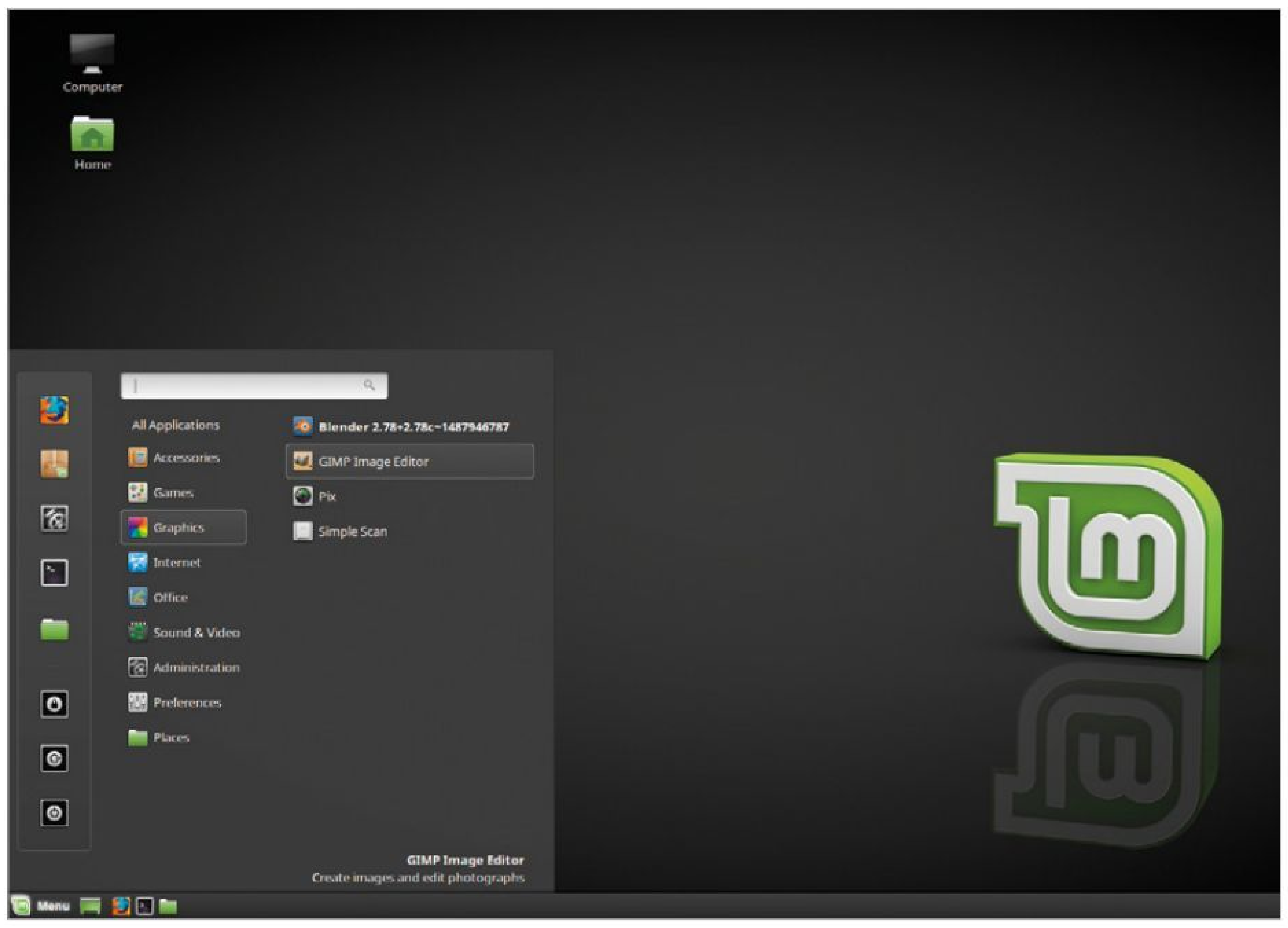
Using GIMP to Edit Images

The GNU Image Manipulation Program or GIMP, is probably one of the most popular open source apps available. It's a free alternative to Photoshop and whilst not quite as powerful as Adobe's impressive app, there's still plenty to get your teeth into.

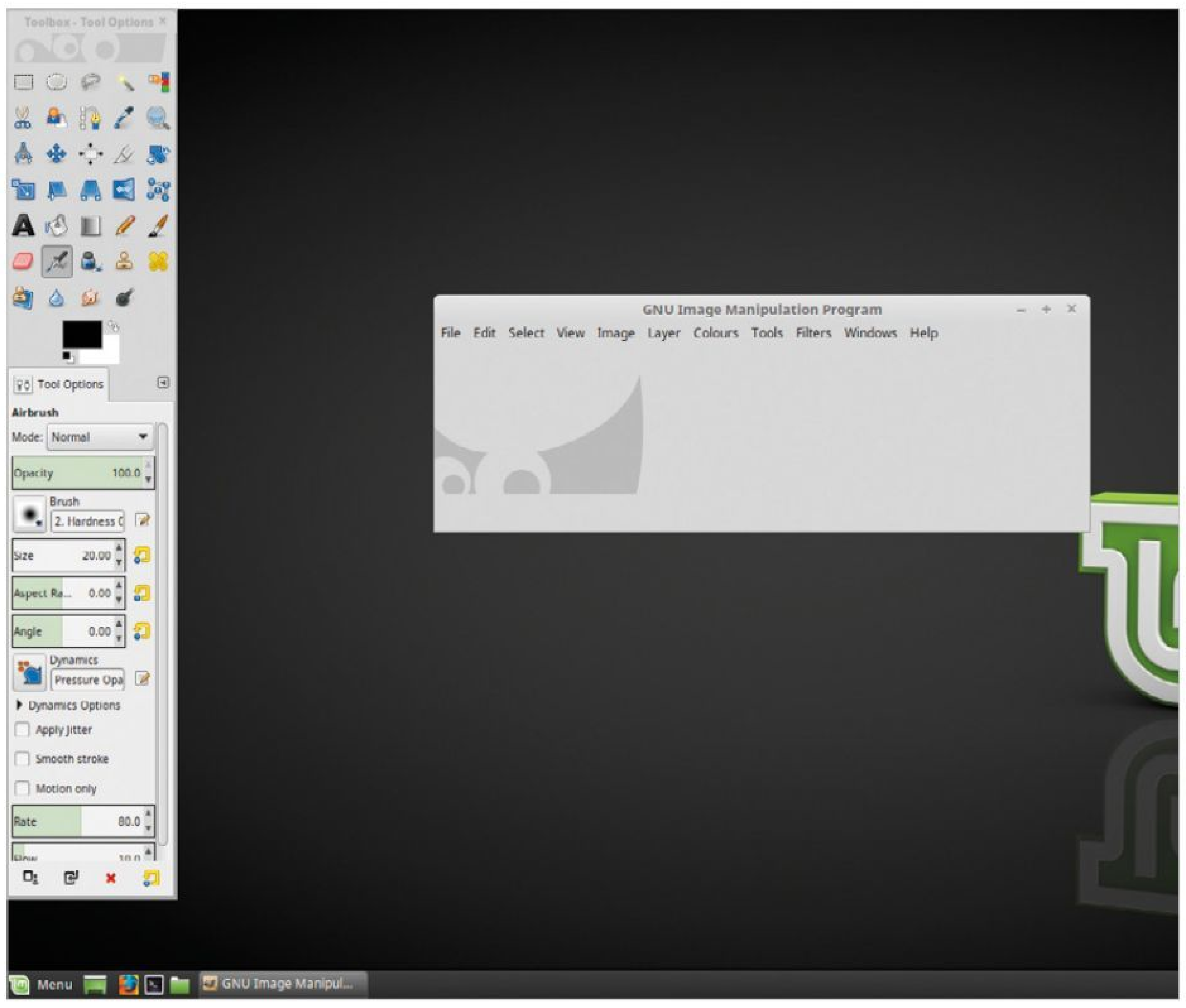
BRING OUT THE GIMP

GIMP may seem a little overwhelming to begin with, due to its complexity and layout, but these tips and tricks will help you see how versatile and powerful the app really is.

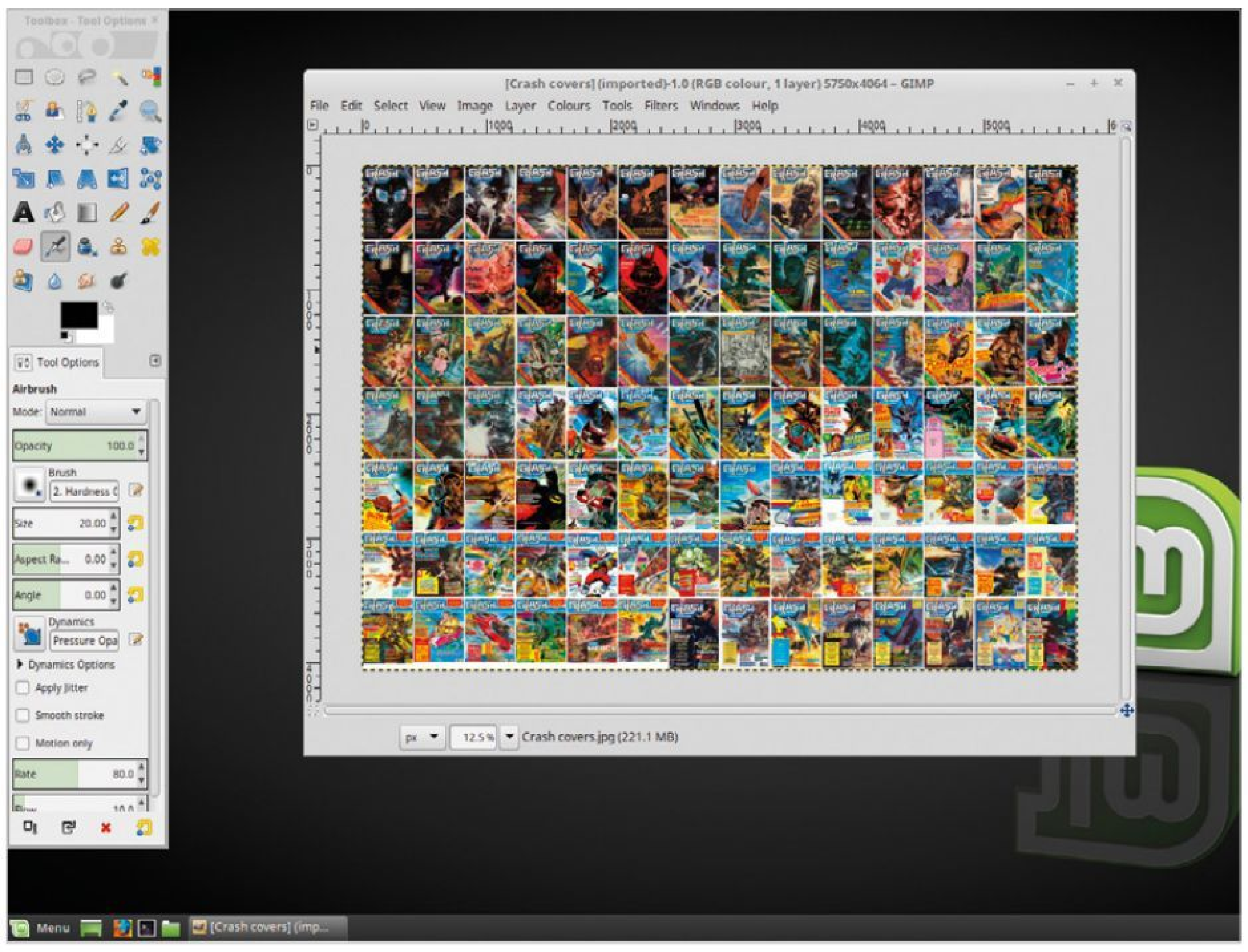
STEP 1 Thankfully GIMP comes preinstalled with Linux Mint, saving you the trouble of installing it yourselves; although to be fair, it's not too difficult to install. You can find GIMP in the Menu under the Graphics heading. Click on GIMP Image Editor to open it.


Computer
Home
All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Blender 2.78c-2.78c~1487946787
GIMP Image Editor
Pix
Simple Scan
GIMP Image Editor
Create images and edit photographs
Menu

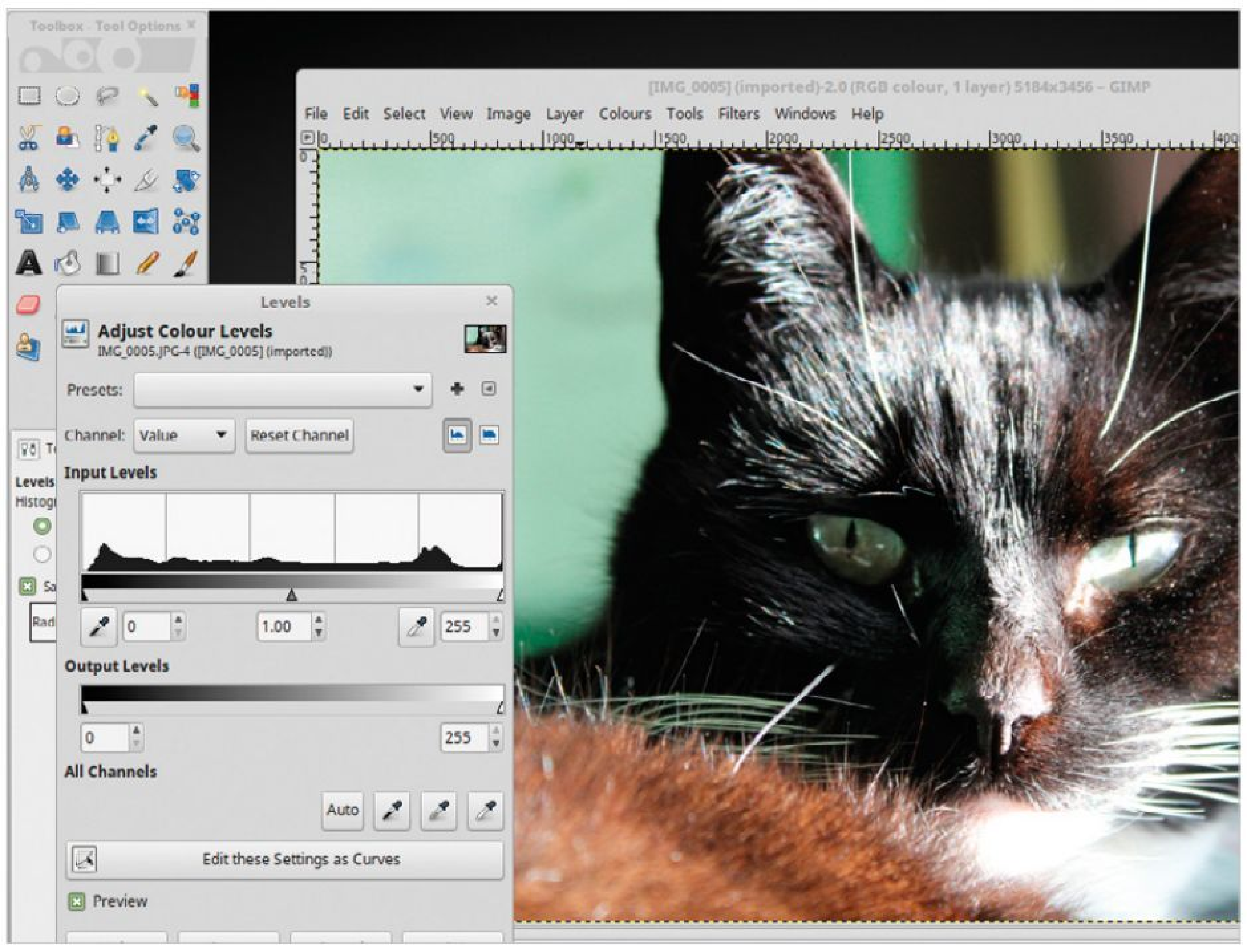
STEP 2 GIMP is an app that's displayed in three sections: a Toolbox side bar to the left, the main image window in the centre and a Layers and options sidebar to the right.


Toolbox - Tool Options
GNU Image Manipulation Program
File Edit Select View Image Layer Colours Tools Filters Windows Help
Tool Options
Airbrush
Mode: Normal
Opacity 100.0
Brush
2. Hardness
Size 20.00
Aspect Ra... 0.00
Angle 0.00
Dynamics
Pressure Opa
Dynamics Options
Apply Jitter
Smooth stroke
Motion only
Rate 80.0
Menu
GNU Image Manipul...

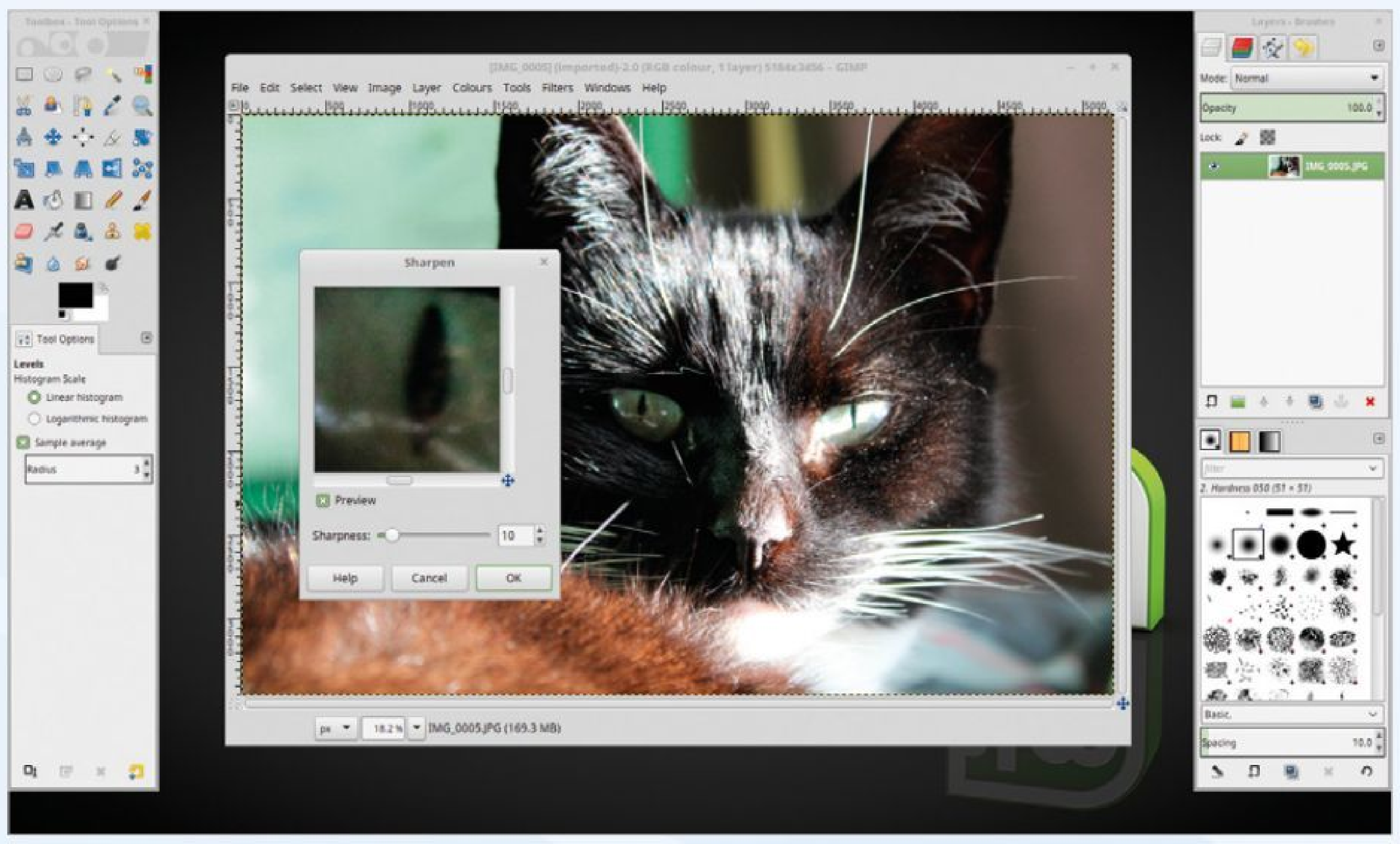
STEP 3 To open an image, move the mouse up to the Menu Bar area and click File > Open. You now have an Open Image window, simply locate the image you want to open, ~/Pictures for example.


Toolbox - Tool Options
[Crash covers] (imported)-1.0 (RGB colour, 1 layer) 5750x4064 – GIMP
File Edit Select View Image Layer Colours Tools Filters Windows Help
Tool Options
Airbrush
Mode: Normal
Opacity 100.0
Size 20.00
Angle 0.00
Dynamics Options
Apply Jitter
Smooth stroke
Motion only
Rate 80.0
px
12.5 %
Crash covers.jpg (221.1 MB)
Menu
[Crash covers] (imp...

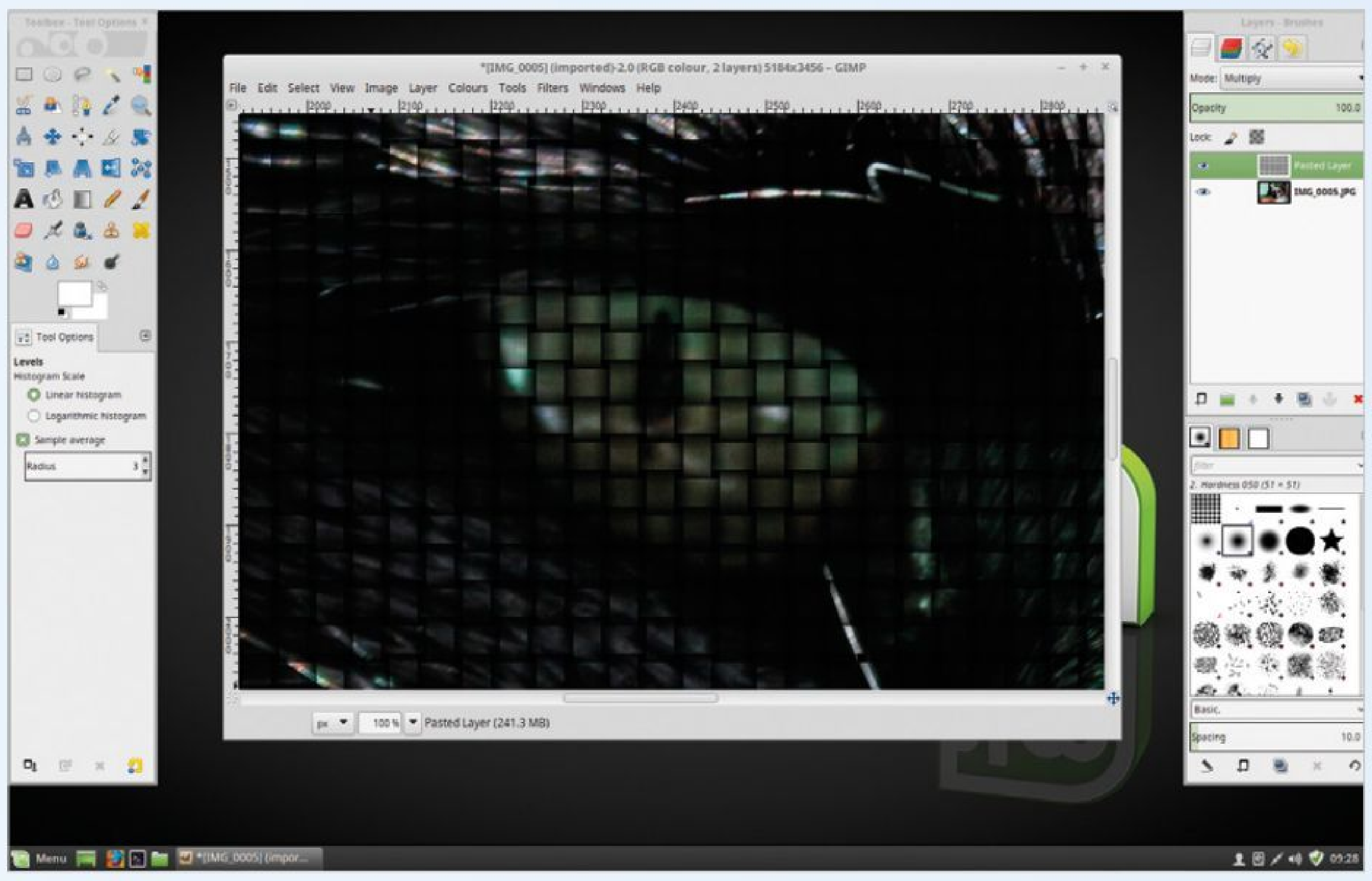
STEP 4 With an image open, you now have countless tweaks and features you can apply to edit and manipulate with. For example, from the Menu Bar click on Colours > Levels. With this tool you're able to fine tune the available colours, lightening or darkening the image to bring out details.


Toolbox - Tool Options
[IMG_0005] (imported)-2.0 (RGB colour, 1 layer) 5184x3456 – GIMP
File Edit Select View Image Layer Colours Tools Filters Windows Help
Levels
Adjust Colour Levels
IMG_0005.JPG-4 ([IMG_0005] (imported))
Presets:
Channel: Value
Reset Channel
Input Levels
0
1.00
255
Output Levels
0
255
All Channels
Auto
Edit these Settings as Curves
Preview

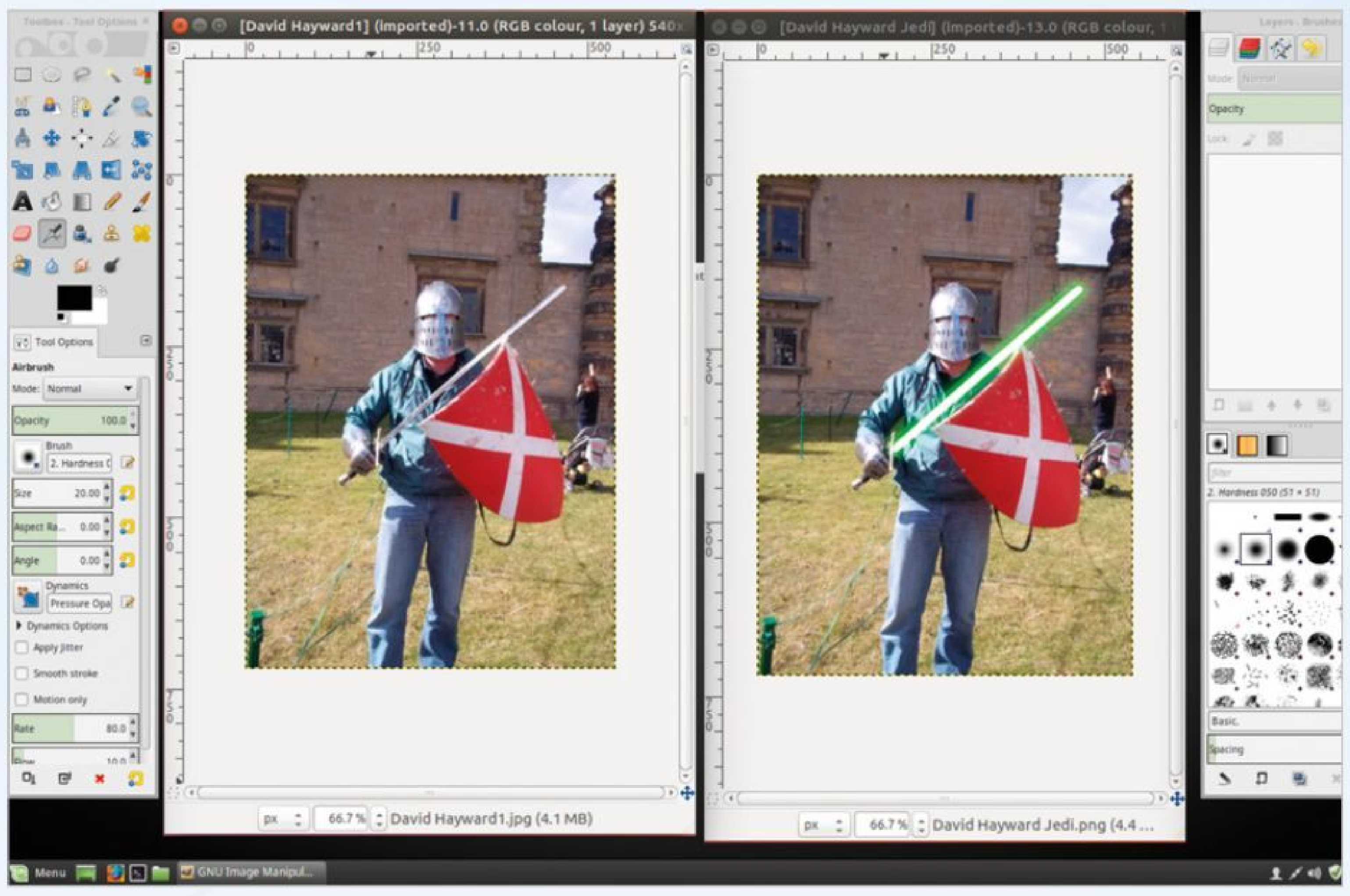
STEP 5 Close the Colour Level window and now open Filters > Enhance > Sharpen. As the title suggests this will sharpen the image; there's a handy Preview available for close-up sections. The trick is, as with most image editing apps, not to overdo any filter or edit. Take GIMP in small steps for the best results.



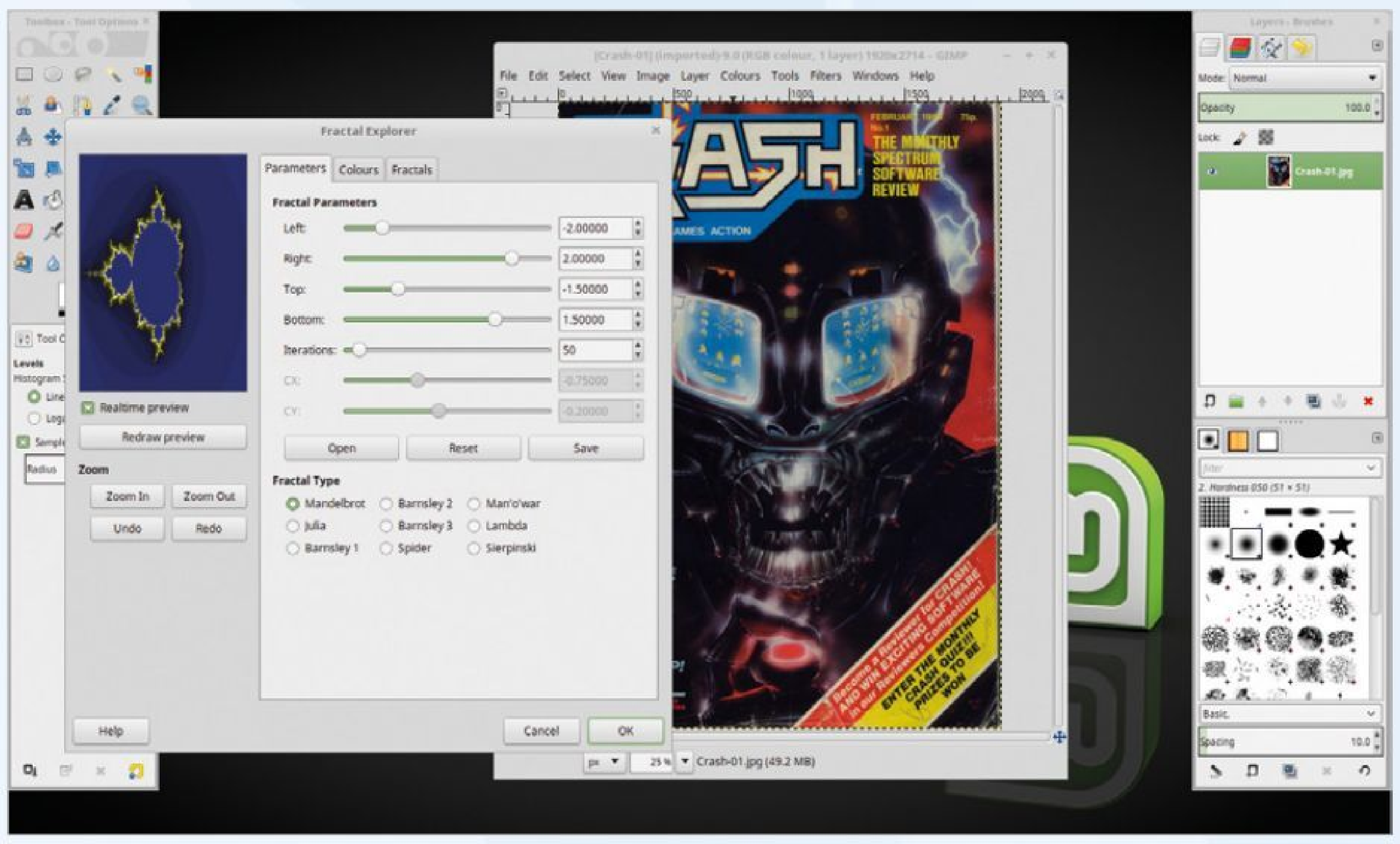
STEP 6 You can find a wealth of filters available that come preinstalled with GIMP and there are many more plug-ins on the web. Try Filters > Artistic > Weave, this will apply the filter and create a cloth weave effect on the image. Zoom in using the percent scale at the bottom of the image to see a close-up of the effect.



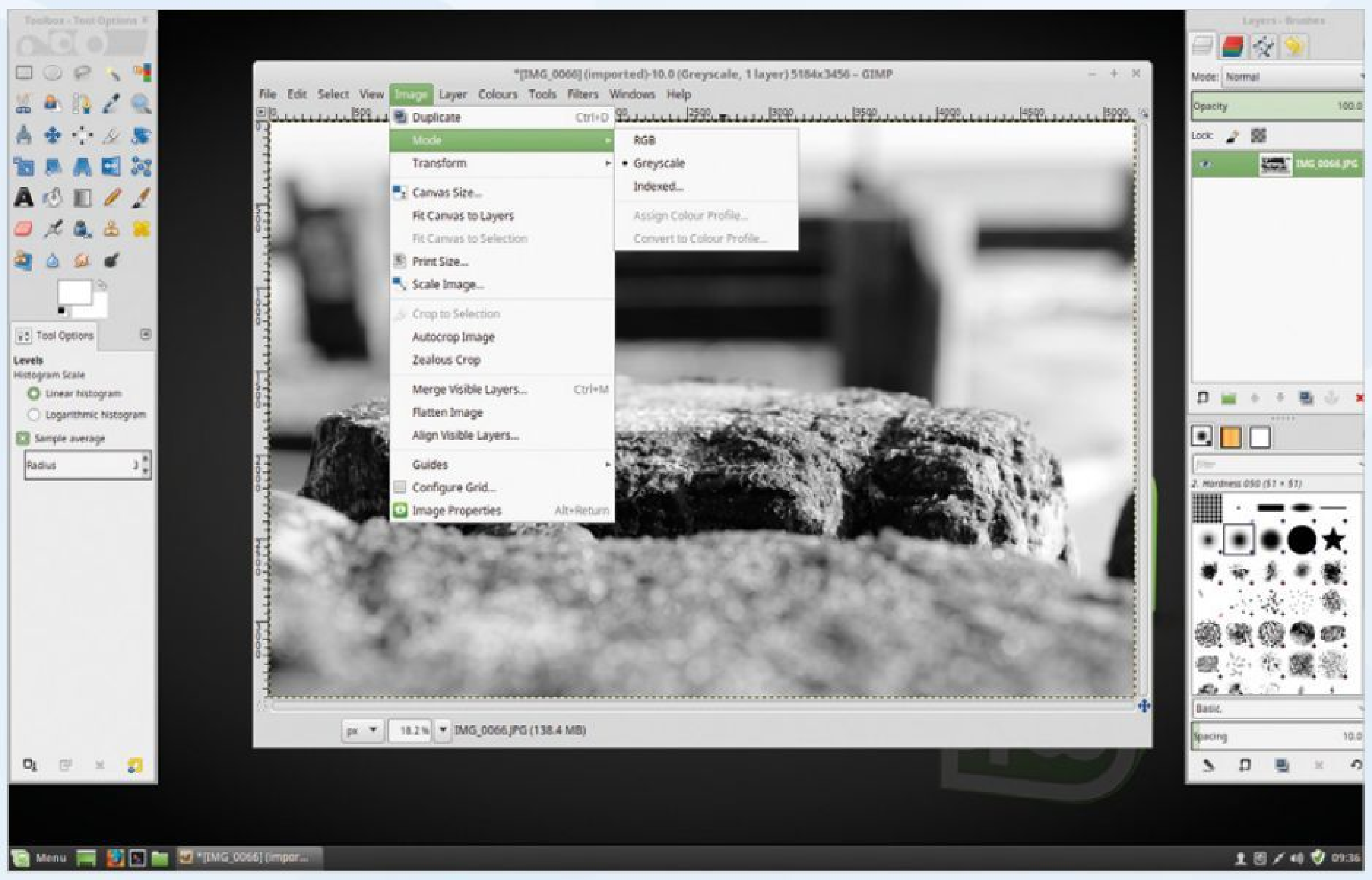
STEP 7 It may not be as friendly as Photoshop but GIMP can be just as effective. By introducing various layers, Gaussian Blur filters and recolouring selected areas, you can accomplish some nifty effects, including creating a Lightsaber effect on a sword.



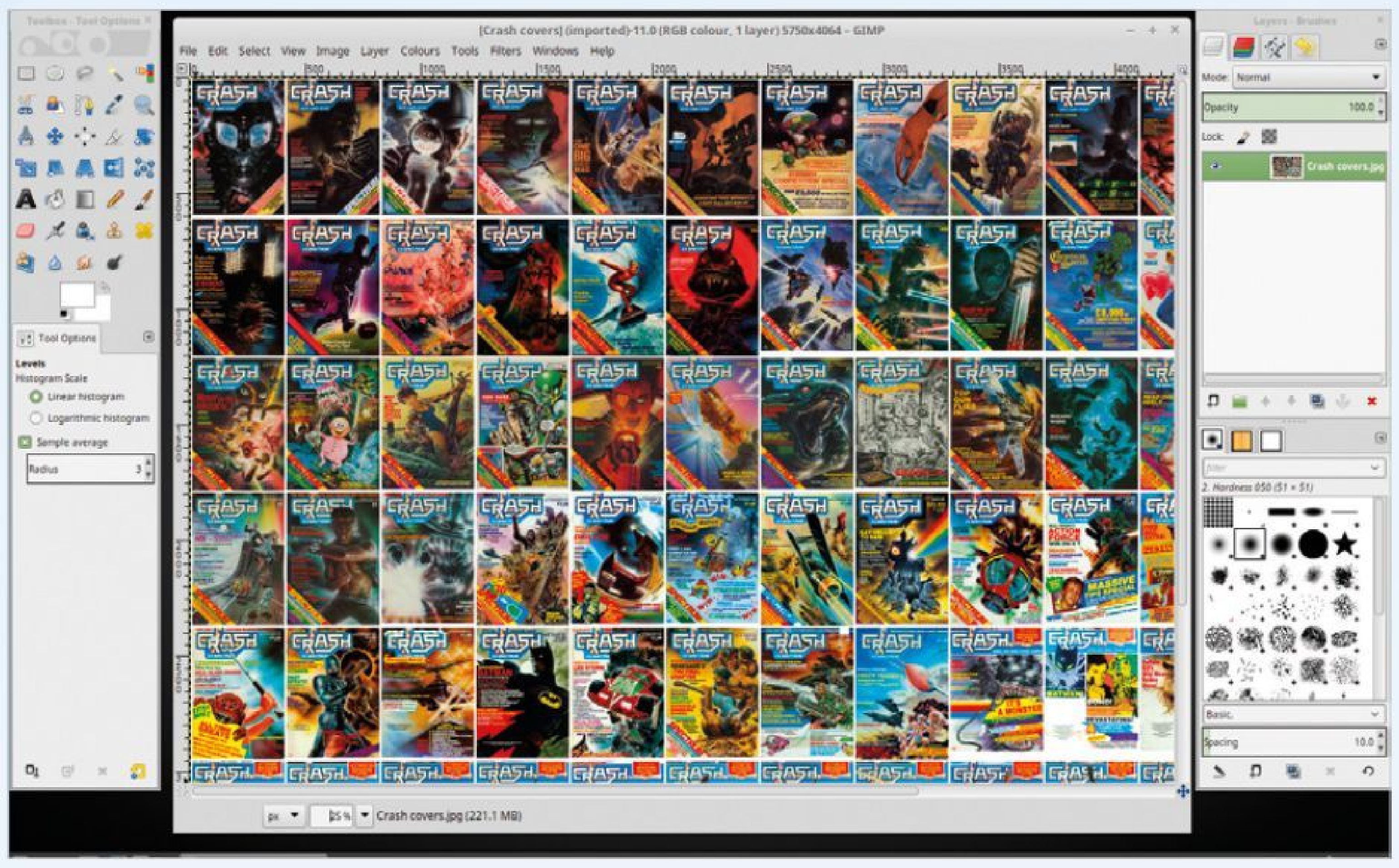
STEP 8 A favourite feature among many GIMP users is the Fractal Explorer. This is a fantastic tool for creating unique desktop wallpapers. If you navigate to Filters > Render > Fractal Explorer, there are various options available in which to create a fractal. Move the sliders around to change the effect.



STEP 9 Converting colour photos to black and white can often come at a cost; loss of the original image quality in most cases. GIMP, like Photoshop, can easily convert colour to B&W without any loss in quality. With your image open, click Image > Mode > Greyscale.



STEP 10 There are countless tutorials on the features within GIMP available from the main GIMP webpage, www.gimp.org. We recommend you run through the basics and from there begin to expand into more advanced territories. Either way, you'll be pleasantly surprised with how good GIMP is.



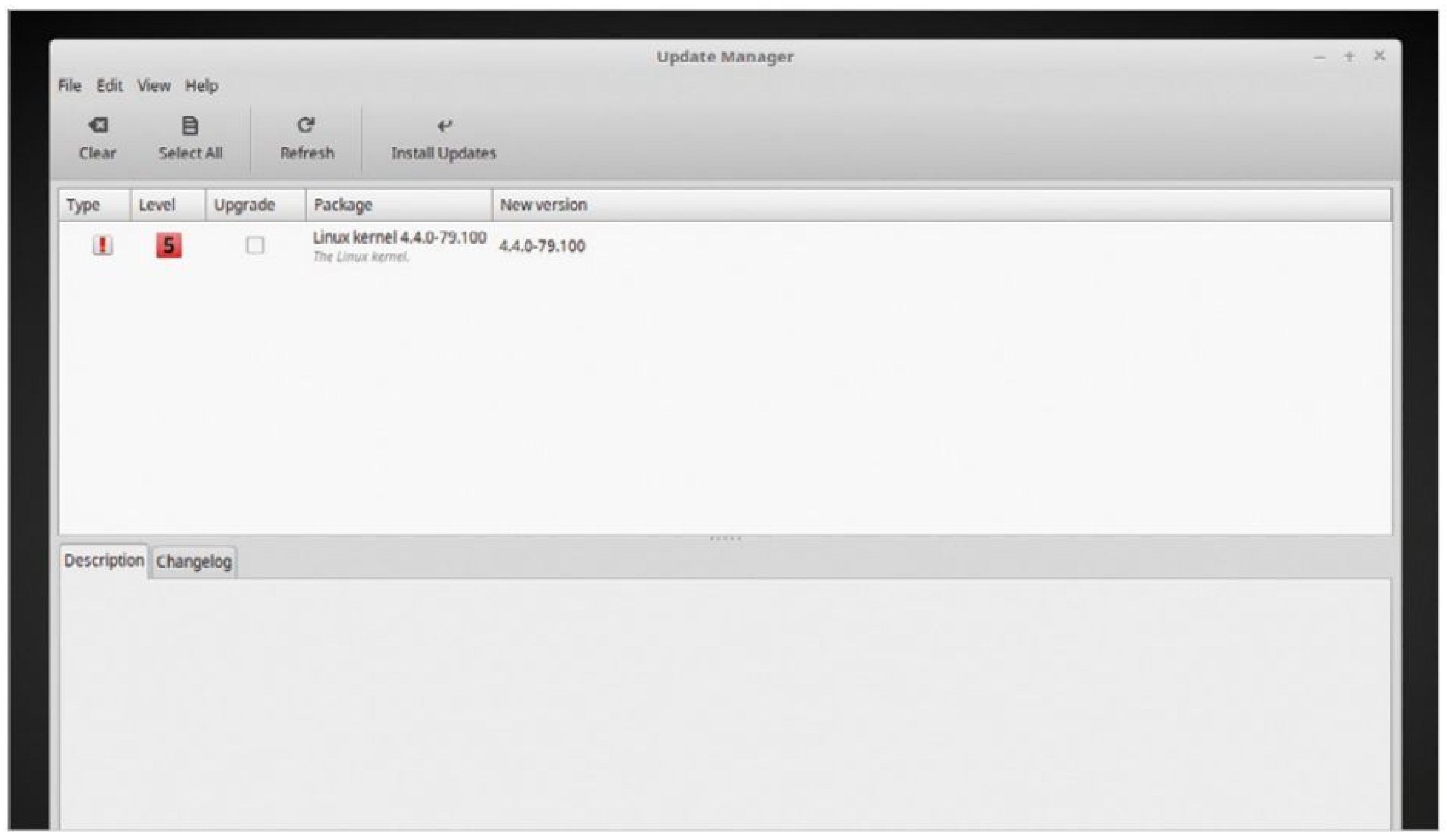
Burning to CD and DVD

Although optical media may not be as prominent as it once was, since the average USB flash drive can hold more data, there's still a need for burning a CD or DVD. Linux Mint can, of course, handle both types of media.

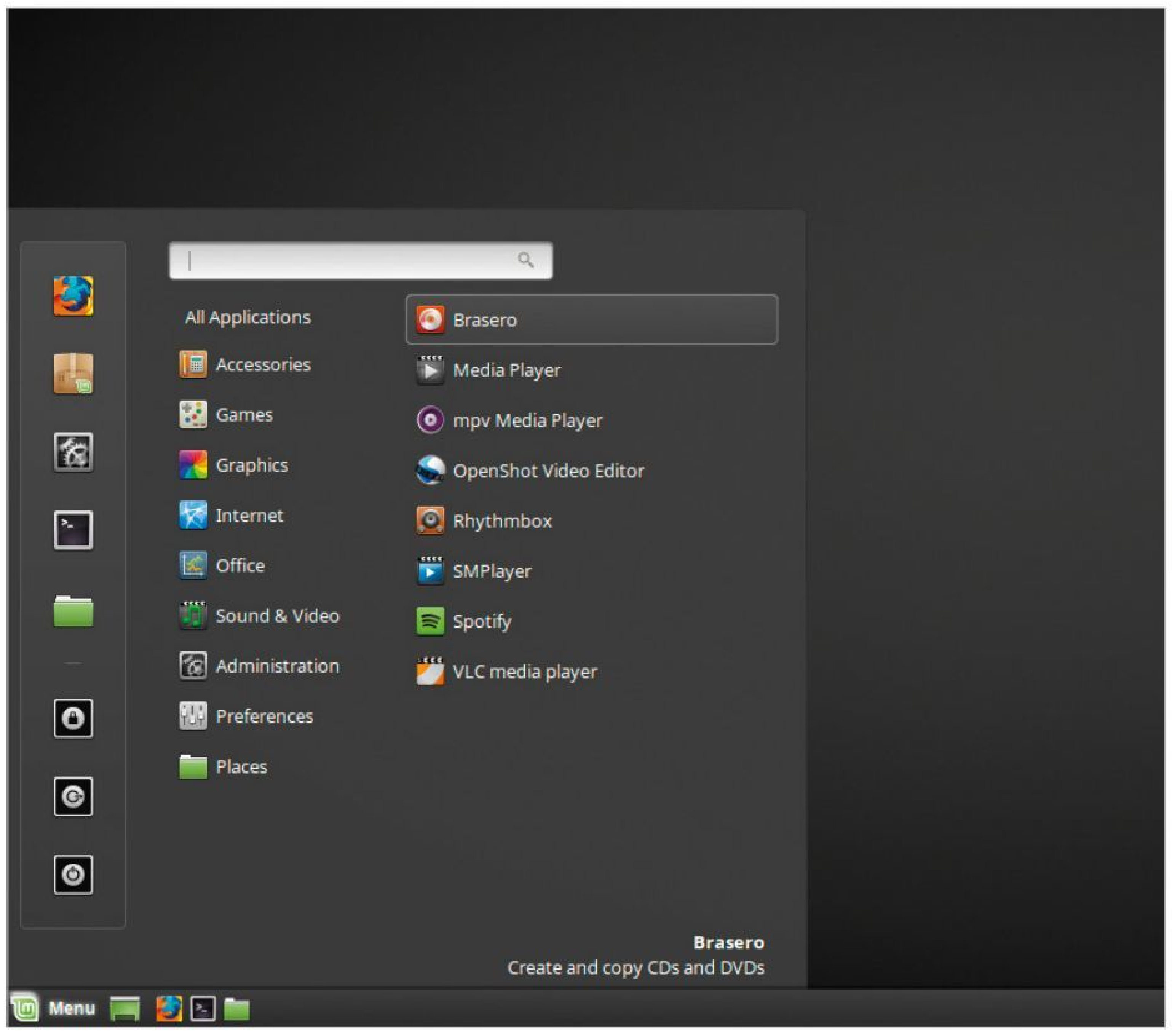
BURNING MEDIA

Due to the versatility of Mint, there are a number of ways in which to burn content to a CD or DVD. Here, though, we're using the built-in program, Brasero.

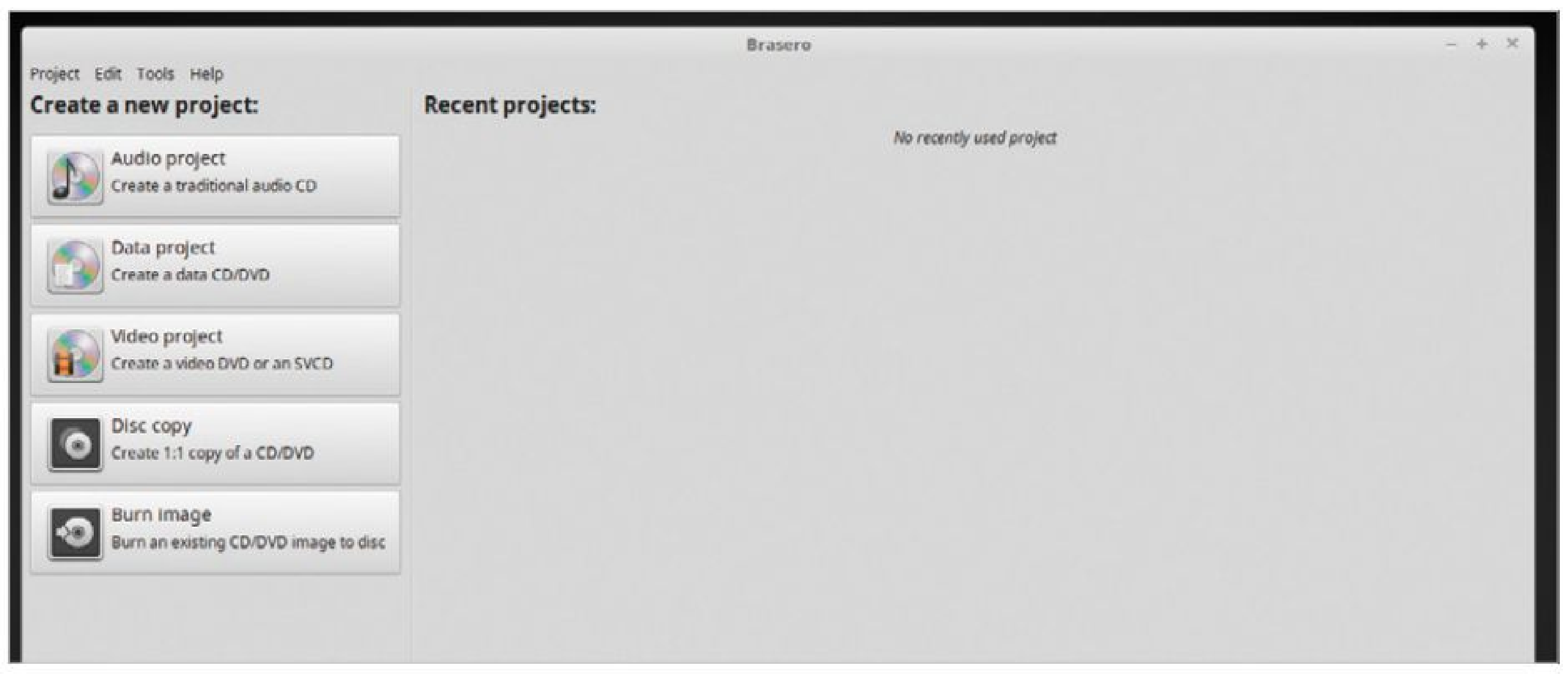
STEP 1 Before you begin, check for any updates to the Mint system. This ensures the processes you use in this tutorial are up to date and the Brasero program itself, is the latest version. This will naturally eliminate any compatibility issues you may run into with newer media types. Click the Mint Update Manager shield icon and Refresh for any updates.


Update Manager
File Edit View Help
Clear
Select All
Refresh
Install Updates
Type
Level
Upgrade
Package
New version
!
5
Linux kernel 4.4.0-79.100
The Linux kernel.
4.4.0-79.100
Description
Changelog

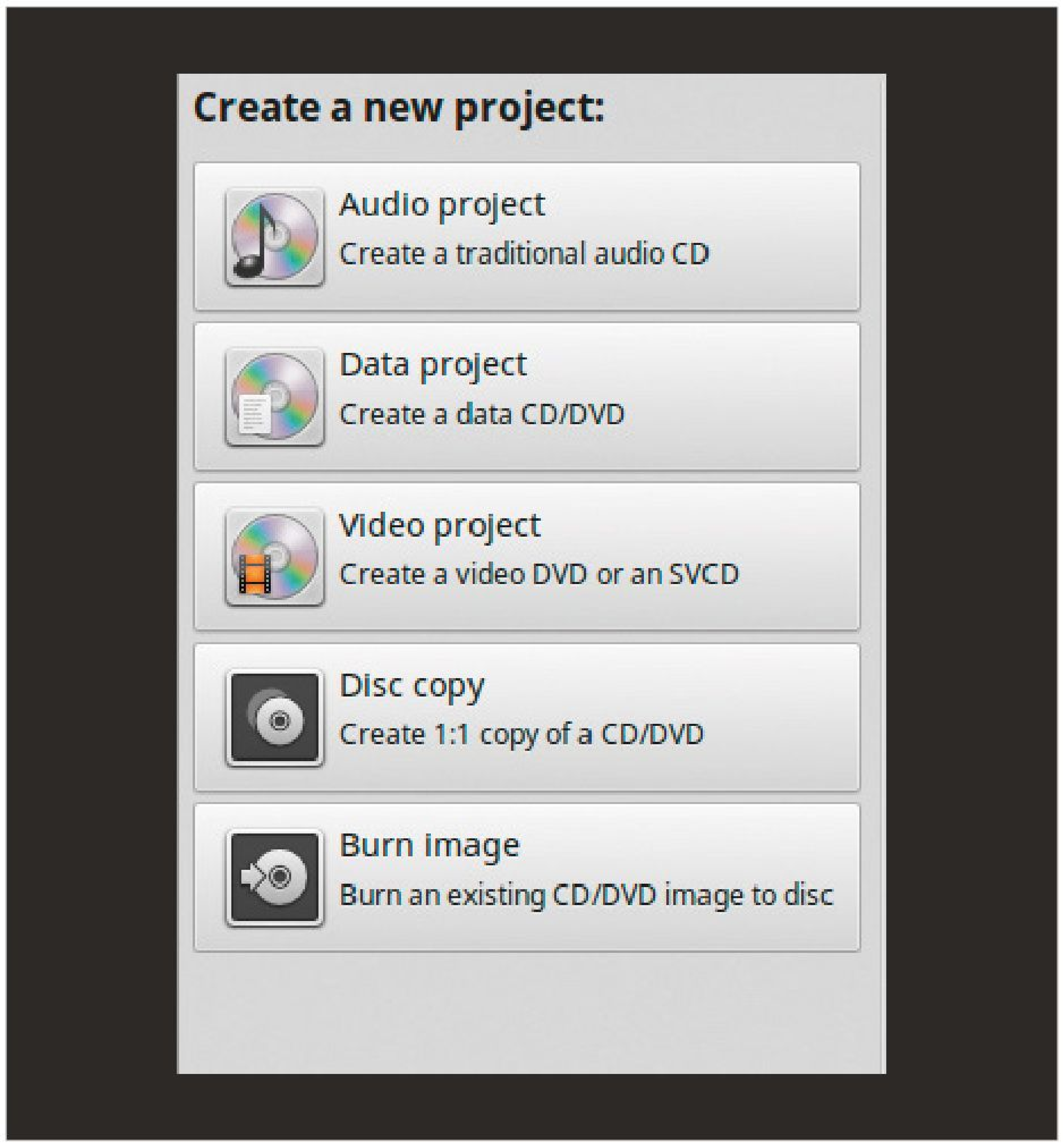
STEP 2 Brasero isn't always prepacked with Linux distros; thankfully the Mint team had the foresight to include it with 18.1. You can find Brasero in the Menu via the Sound & Vision section. Simply click the icon to launch the program.


All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Brasero
Media Player
mpv Media Player
OpenShot Video Editor
Rhythmbox
SMPlayer
Spotify
VLC media player
Brasero
Create and copy CDs and DVDs
Menu

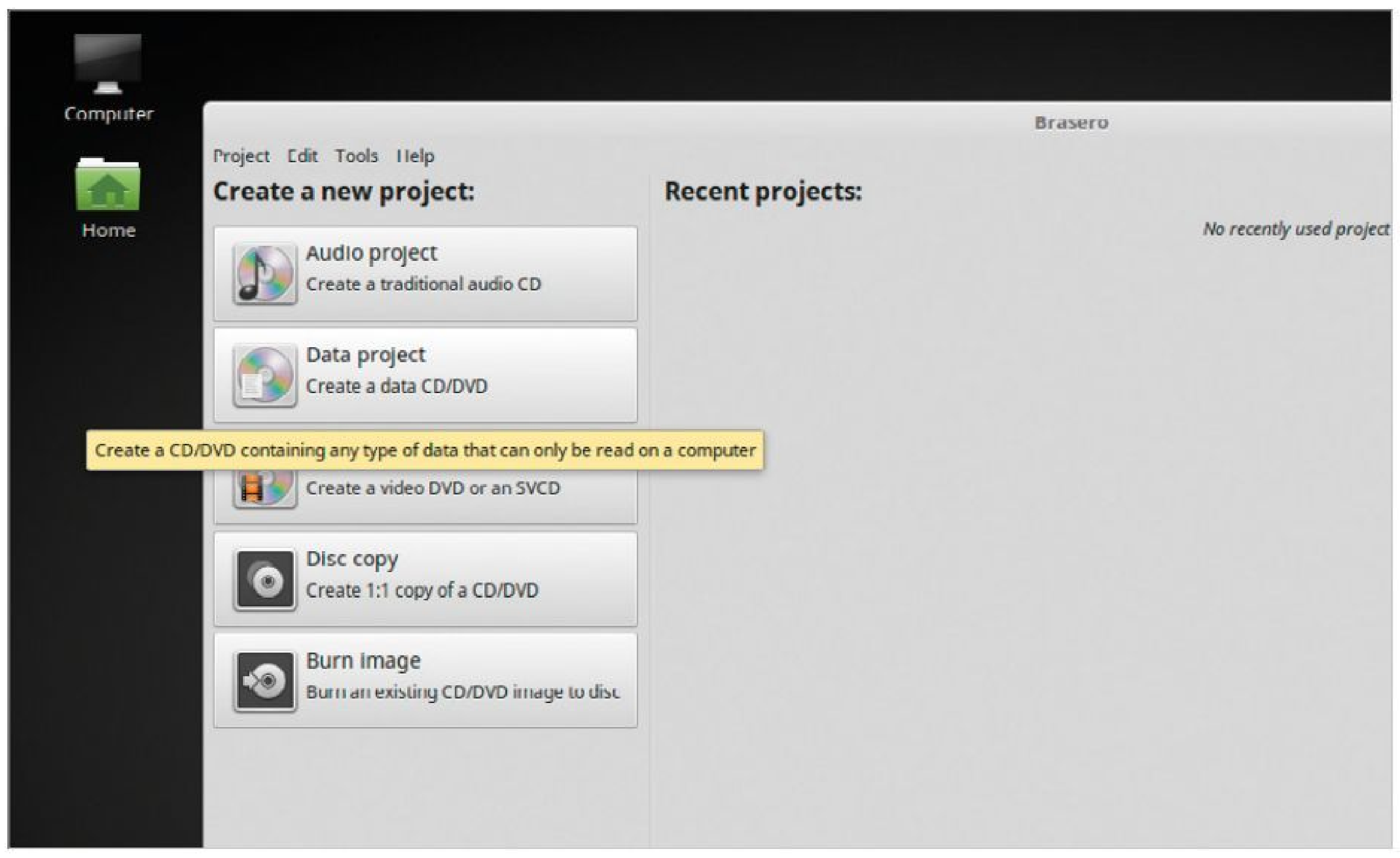
STEP 3 Brasero is also set as the auto-launch program when you insert a blank CD or DVD. Either way, you eventually end up at the main Brasero interface, listing any previous items you've transferred to disc; or blank if it's the first time you've used the program.


Brasero
Project Edit Tools Help
Create a new project:
Audio project
Create a traditional audio CD
Data project
Create a data CD/DVD
Video project
Create a video DVD or an SVCD
Disc copy
Create 1:1 copy of a CD/DVD
Burn image
Burn an existing CD/DVD image to disc
Recent projects:
No recently used project

STEP 4 The Brasero app allows you to create several types of optical media, called Projects. You can create an audio disc for playing in a stereo, a data or backup disc, a DVD for playing in a DVD player; or you can simply copy the contents from one disc to another. You can also burn ISO images to disc.

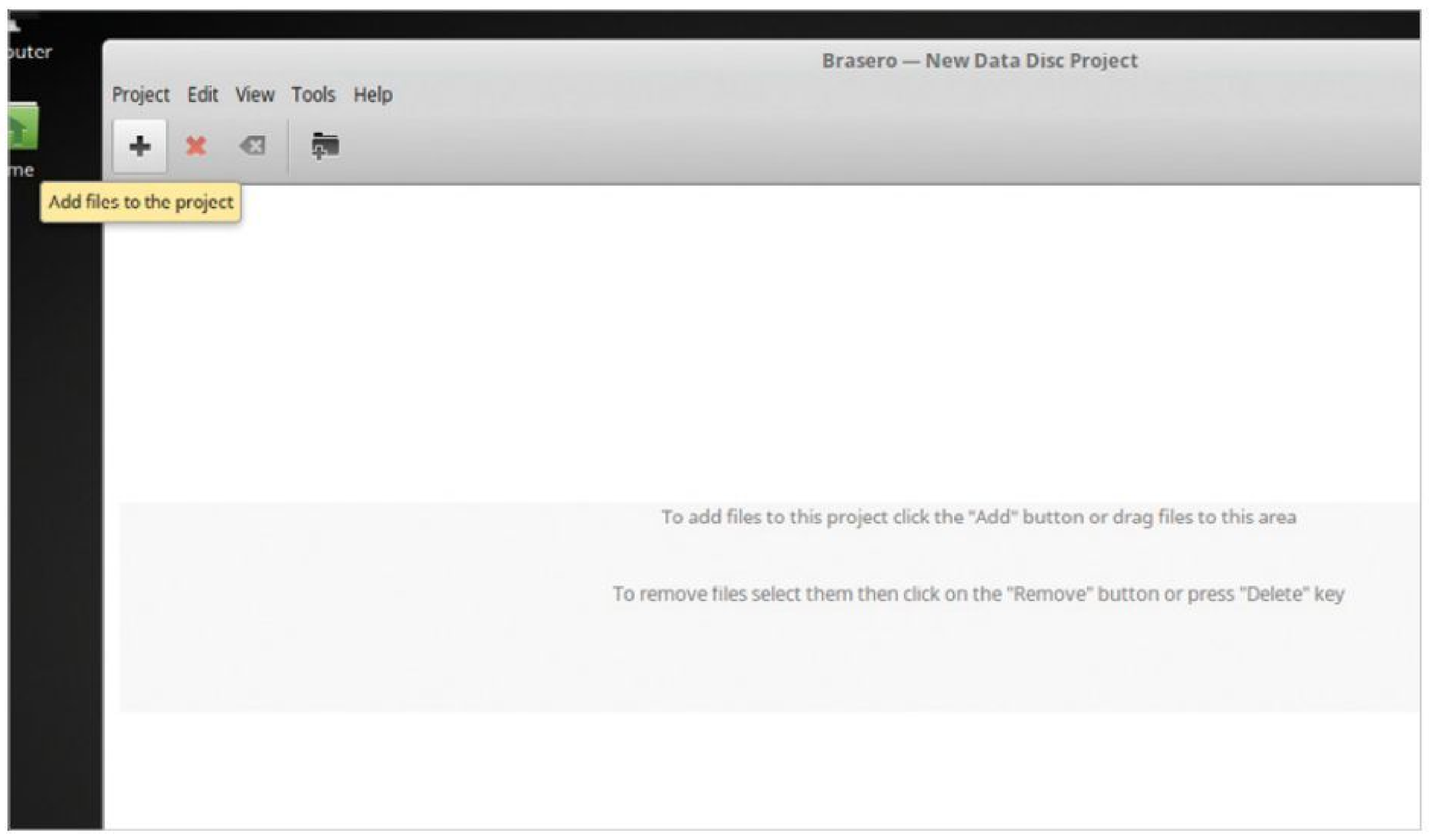

Create a new project:
Audio project
Create a traditional audio CD
Data project
Create a data CD/DVD
Video project
Create a video DVD or an SVCD
Disc copy
Create 1:1 copy of a CD/DVD
Burn image
Burn an existing CD/DVD image to disc

STEP 5 Before you start burning anything to a disc though, you need to create a New Project. The projects are listed down the left-hand pane of the main window. In this example, we're creating a Data Project, where we can write files and folders to the disc. Click on the Data Project button, making sure there's blank media in the drive.


Computer
Home
Brasero
Project Edit Tools Help
Create a new project:
Recent projects:
No recently used project
Audio project
Create a traditional audio CD
Data project
Create a data CD/DVD
Create a video DVD or an SVCD
Disc copy
Create 1:1 copy of a CD/DVD
Burn image
Burn an existing CD/DVD image to disc

Create a CD/DVD containing any type of data that can only be read on a computer

STEP 6 The Brasero interface will now display the New Data Disc Project window. Start by adding content using the Plus symbol and locating them from the file manager; or by dragging them from Files into the upper section of the window.

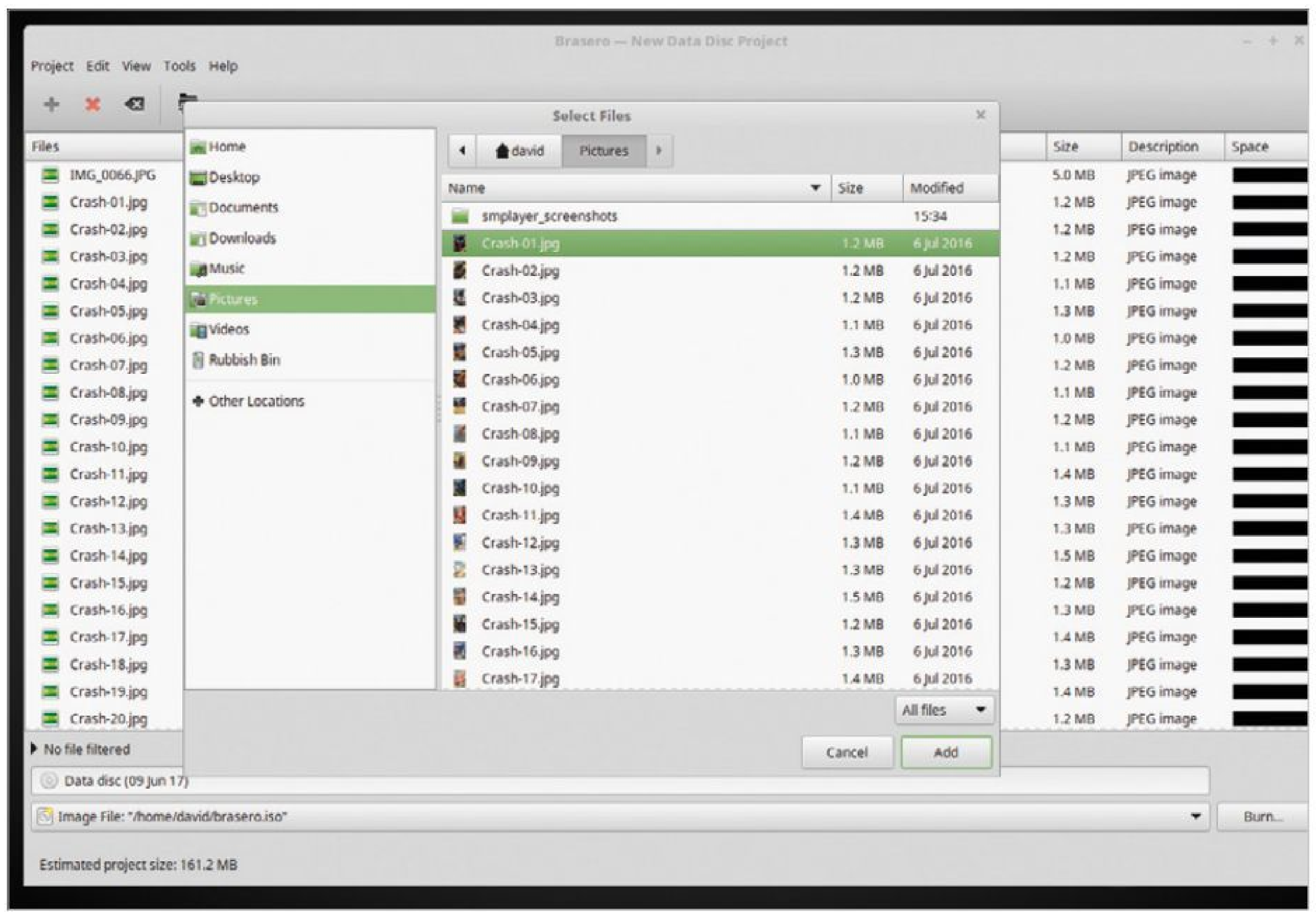

Brasero — New Data Disc Project
Project Edit View Tools Help

Add files to the project

To add files to this project click the "Add" button or drag files to this area

To remove files select them then click on the "Remove" button or press "Delete" key

STEP 7 The content you add to the disc is displayed in the upper section of the Brasero window. You can remove selected or all files (by using the minus and brush icons) or create a new folder. The lower section allows you to enter a name for the disc and the bottom pane displays the amount of space used and remaining.

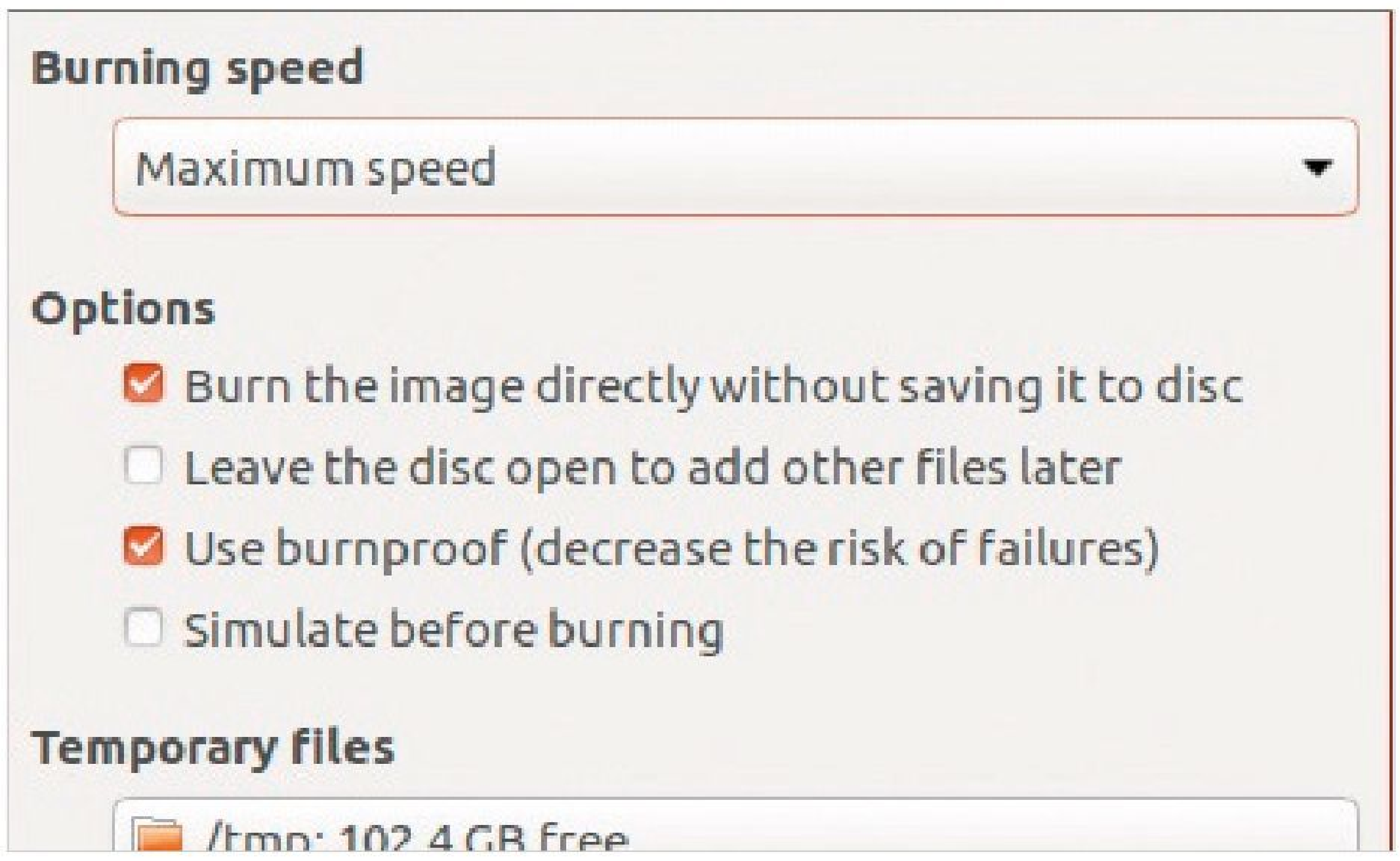

Brasero — New Data Disc Project
Project Edit View Tools Help
Select Files
Home
Desktop
Documents
Downloads
Music
Pictures
Videos
Rubbish Bin
Other Locations
david
Pictures
Name
Size
Modified
Description
Space
All files
Cancel
Add
Burn...

Data disc (09 Jun 17)

Image File: "/home/david/brasero.iso"

Estimated project size: 161.2 MB

STEP 8 When you're satisfied with the content to be written, click on the Burn button. The main Brasero window closes, and you're presented with a smaller burning options window. Here you can specify the speed at which the drive will write the files to the disc, and other options. Generally speaking, the default options will suffice.



Burning speed

Maximum speed

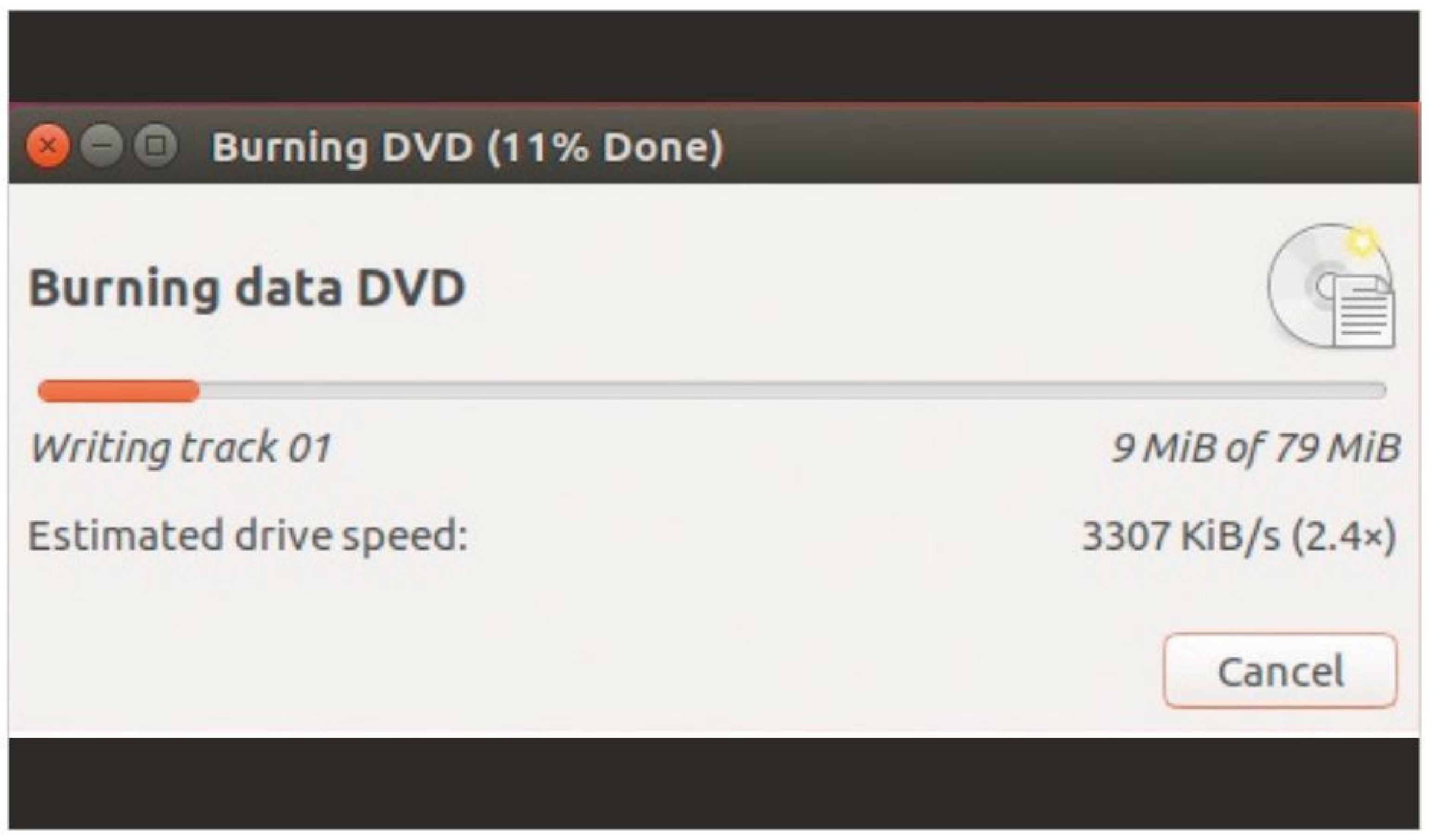
Options

☑ Burn the image directly without saving it to disc
☐ Leave the disc open to add other files later
☑ Use burnproof (decrease the risk of failures)
☐ Simulate before burning

Temporary files

/tmp: 102.4 GB free

STEP 9 Click the Burn button to start the process. The disc will spin up and Brasero will display several screens detailing the current state of the process. When the disc has been finalised and the data written, Brasero will auto-eject the disc and make a 'ping' sound.



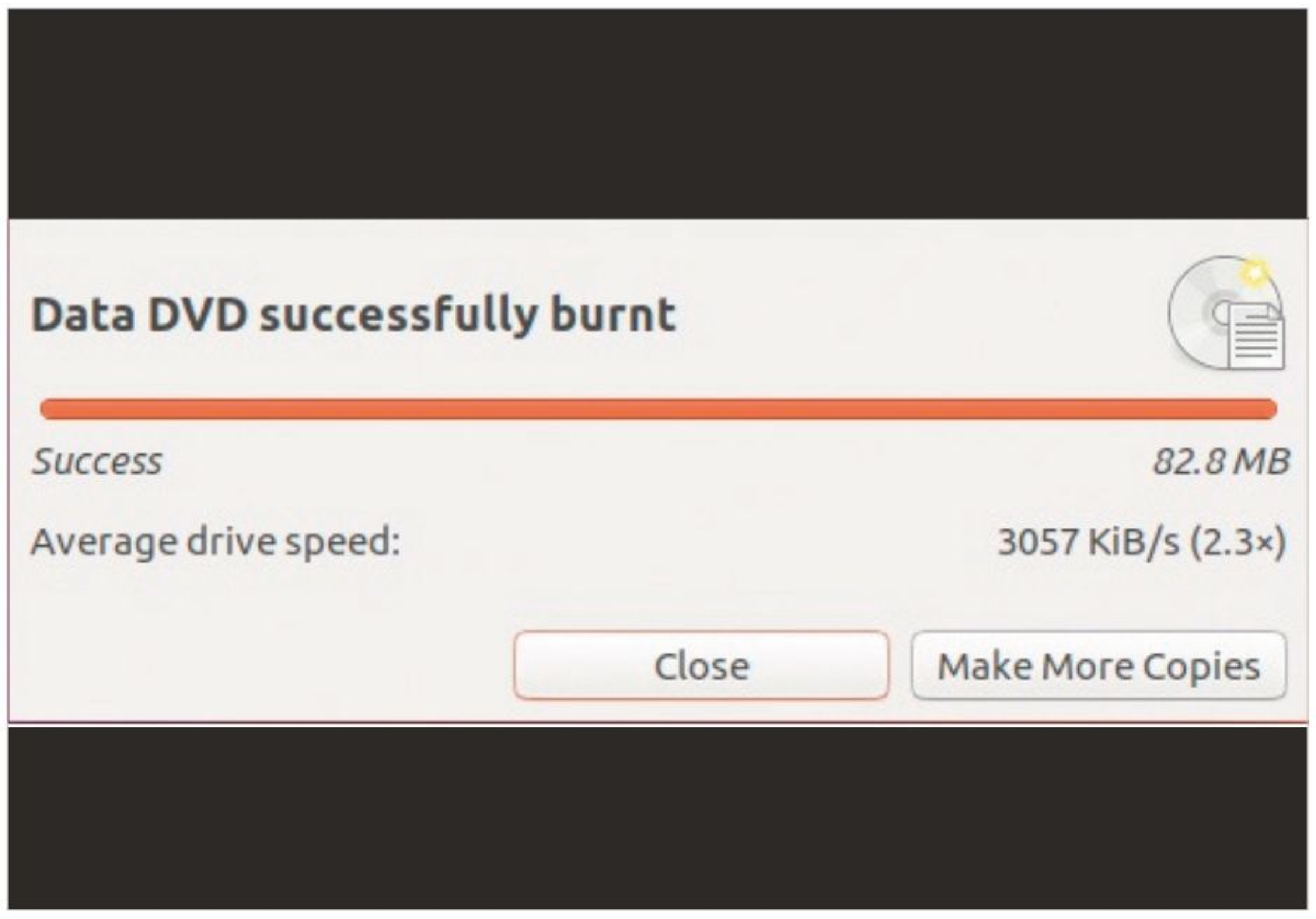
Burning DVD (11% Done)

Burning data DVD

Writing track 01 *9 MiB of 79 MiB*

Estimated drive speed: 3307 KiB/s (2.4×)

STEP 10 Now, you get an option after the burning process is complete to Make More Copies of the same disc; or Close, which brings you back to the New Data Disc Project window. From there you can opt for another data disc, or (if needed) for another burning project. contents to start playing.



Data DVD successfully burnt

Success *82.8 MB*

Average drive speed: 3057 KiB/s (2.3×)

Close
Make More Copies

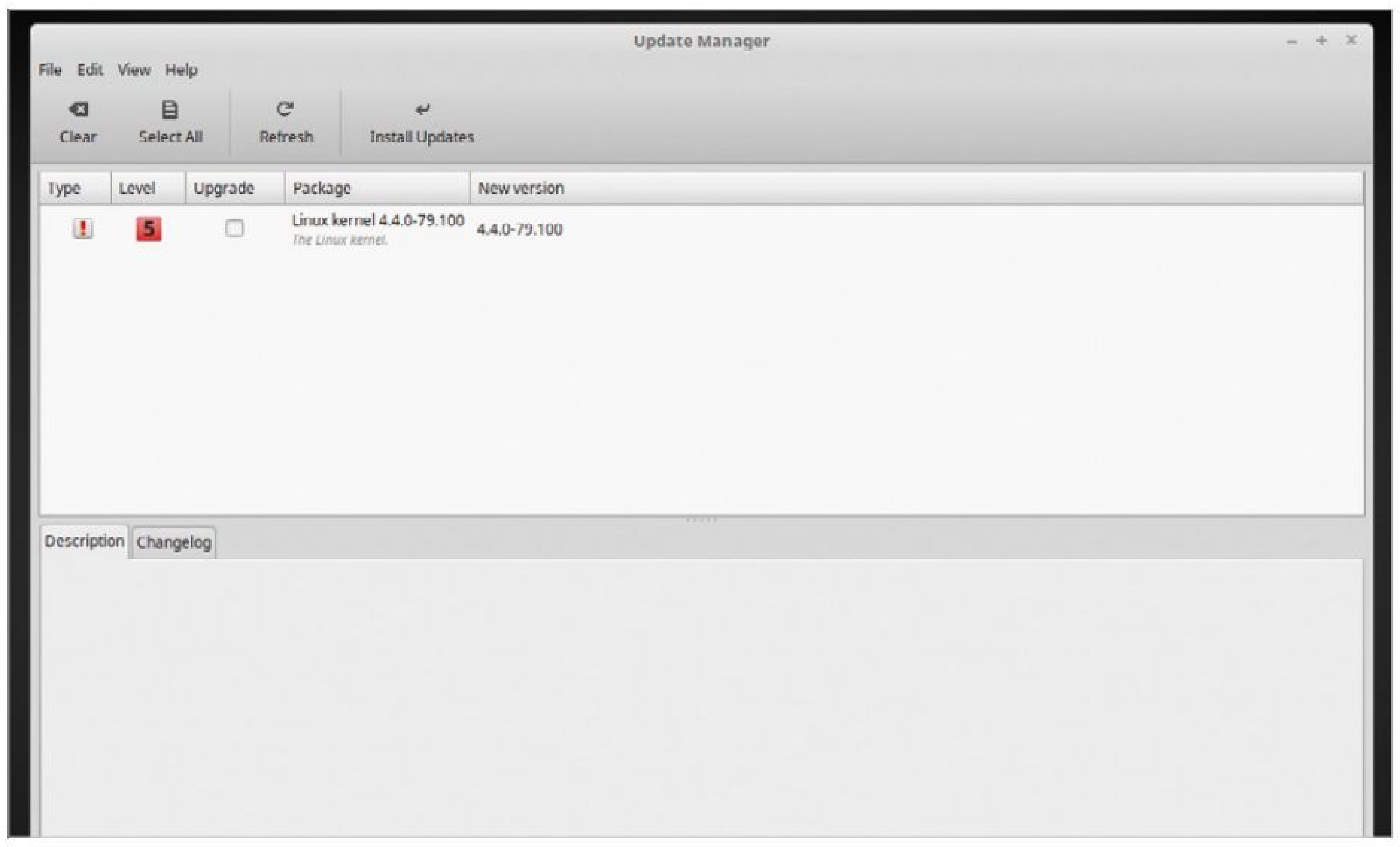
Setting up Email with Thunderbird

Reading and composing email is a fundamental element of a modern operating system. Thankfully Mint has this covered with Mozilla's Thunderbird email client; a powerful but simple to use app that can connect to different email providers.

THUNDERBIRDS ARE GO!

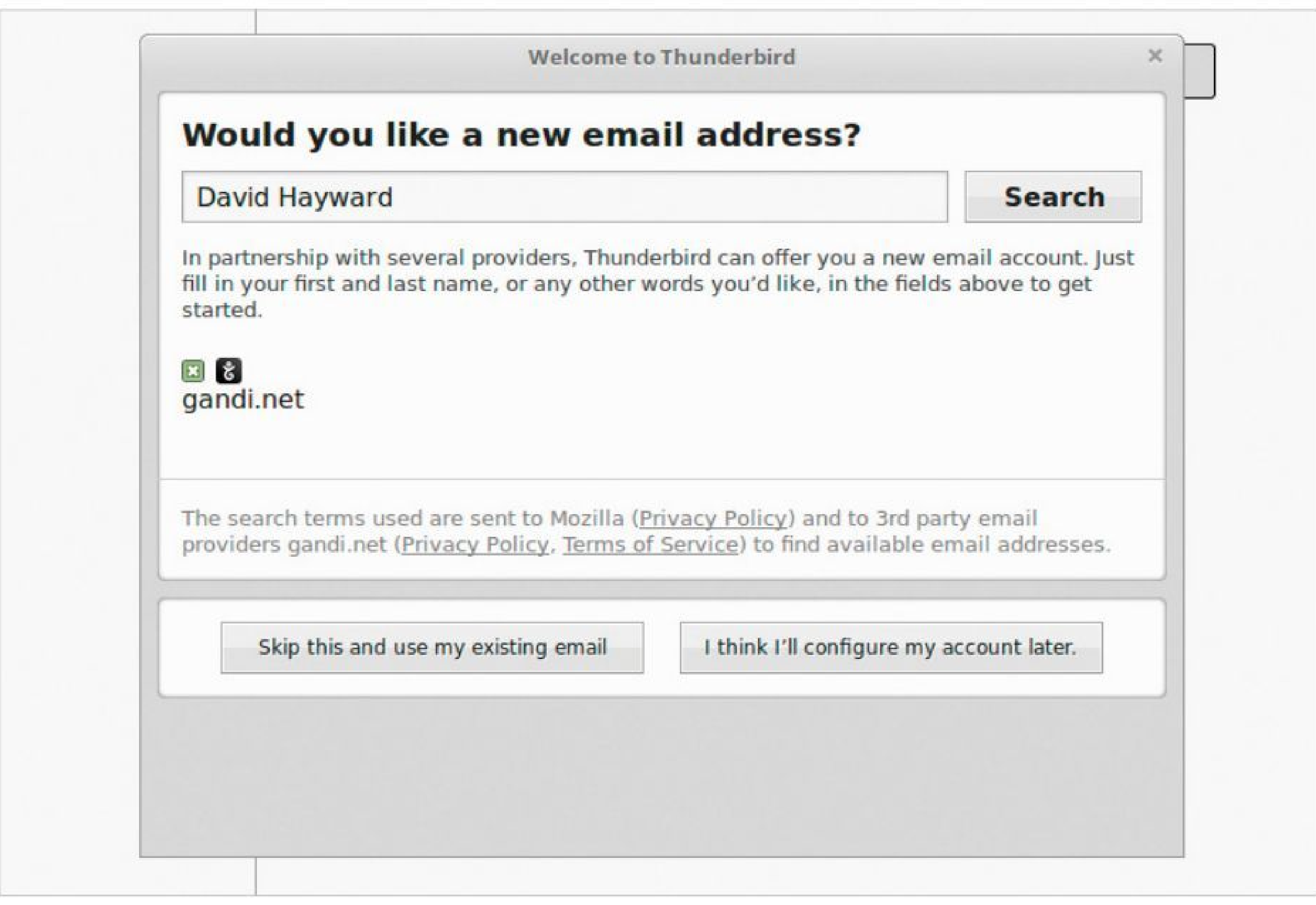
Thunderbird can be easy and quite tricky to set up, depending on which email provider you currently use. Let's look at how to set it up.

STEP 1 Thunderbird, along with Mozilla's other contribution, Firefox, is a regularly updated program. To make sure you're using the latest version, head to the Mint Update Manager via the shield icon in the bottom panel and click the Refresh button to apply any available level 3 or less updates.



Type	Level	Upgrade	Package	New version
!	5	☐	Linux kernel 4.4.0-79.100 *The Linux kernel.*	4.4.0-79.100

STEP 2 Thunderbird Mail can be found from the Menu > Internet. When you first launch Thunderbird you're be asked by the app to create a new email address. The default email provider is Gandi.net, just enter your name and click Search to see if there's an account available.


Welcome to Thunderbird
Search
Skip this and use my existing email
I think I'll configure my account later.

Would you like a new email address?

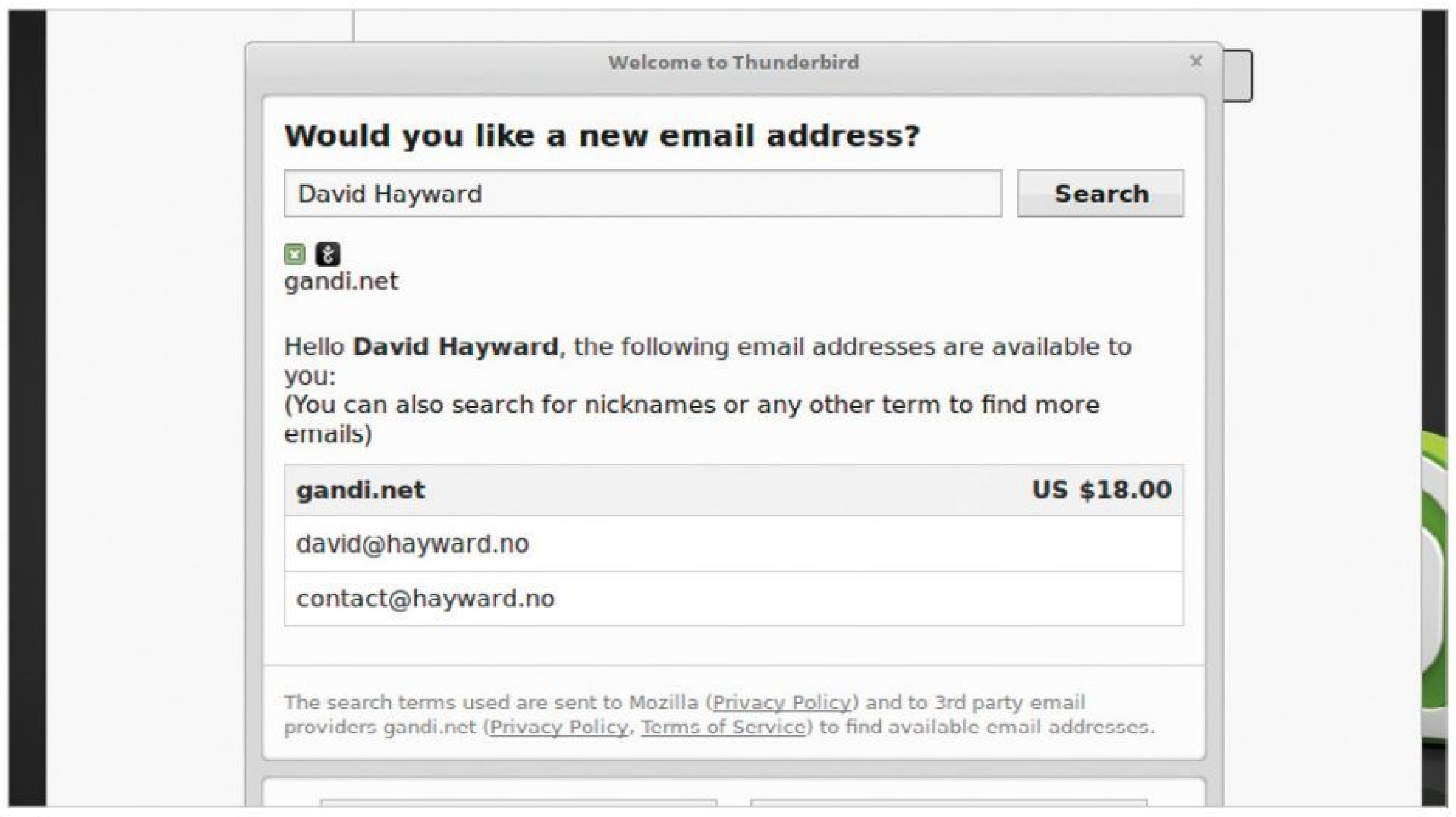
David Hayward

In partnership with several providers, Thunderbird can offer you a new email account. Just fill in your first and last name, or any other words you'd like, in the fields above to get started.

☒ gandi.net

The search terms used are sent to Mozilla (Privacy Policy) and to 3rd party email providers gandi.net (Privacy Policy, Terms of Service) to find available email addresses.

STEP 3 Clicking on Search will present you with a several possible email address options, and how much they cost based on your location. You can of course opt for one of the results displayed but Gmail and the like are free and you're more than likely already using them. Click Skip this and use my existing email to set up Gmail etc.



Would you like a new email address?

David Hayward

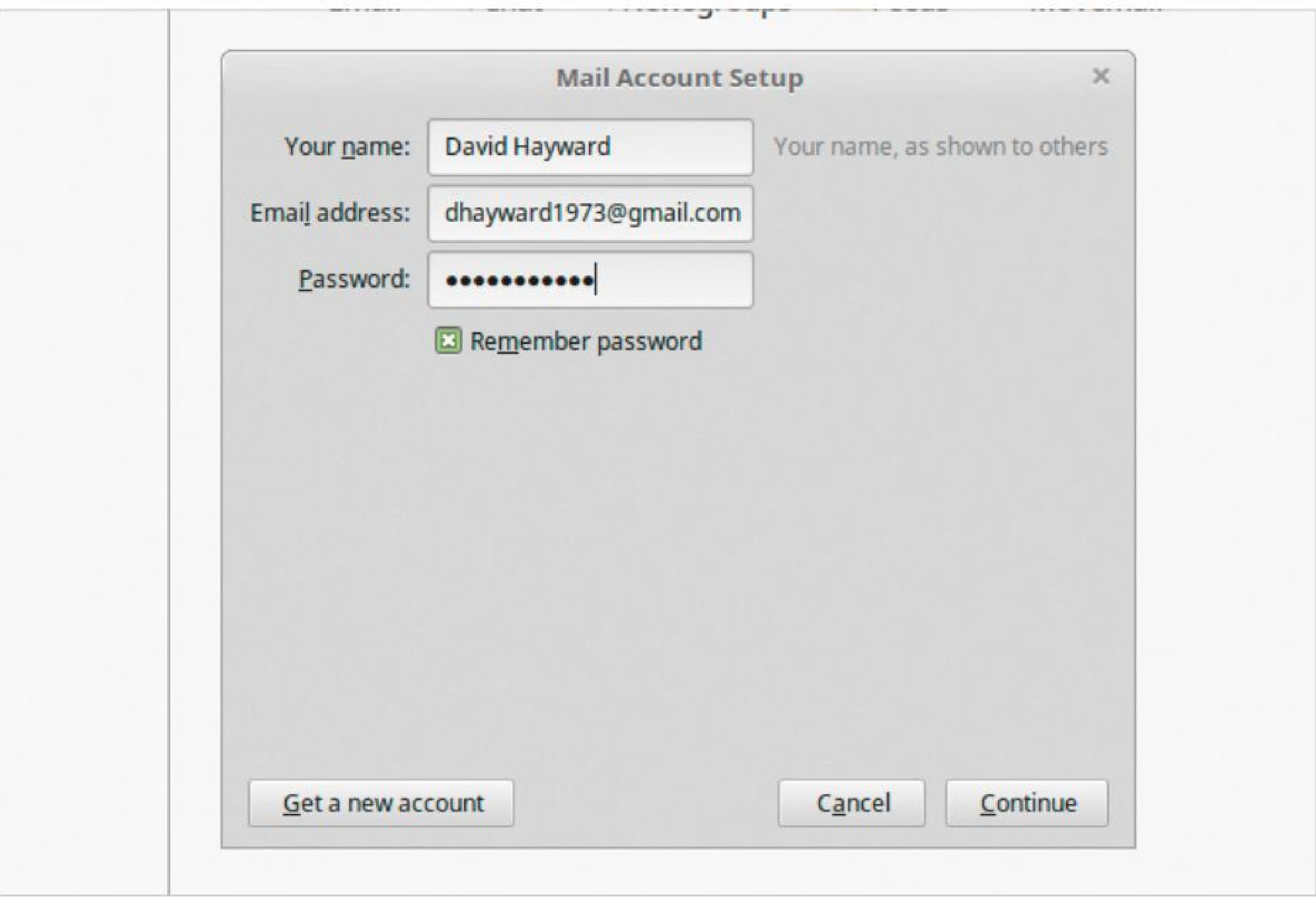
☒ gandi.net

Hello **David Hayward**, the following email addresses are available to you:
(You can also search for nicknames or any other term to find more emails)

gandi.net	US $18.00
david@hayward.no	
contact@hayward.no	

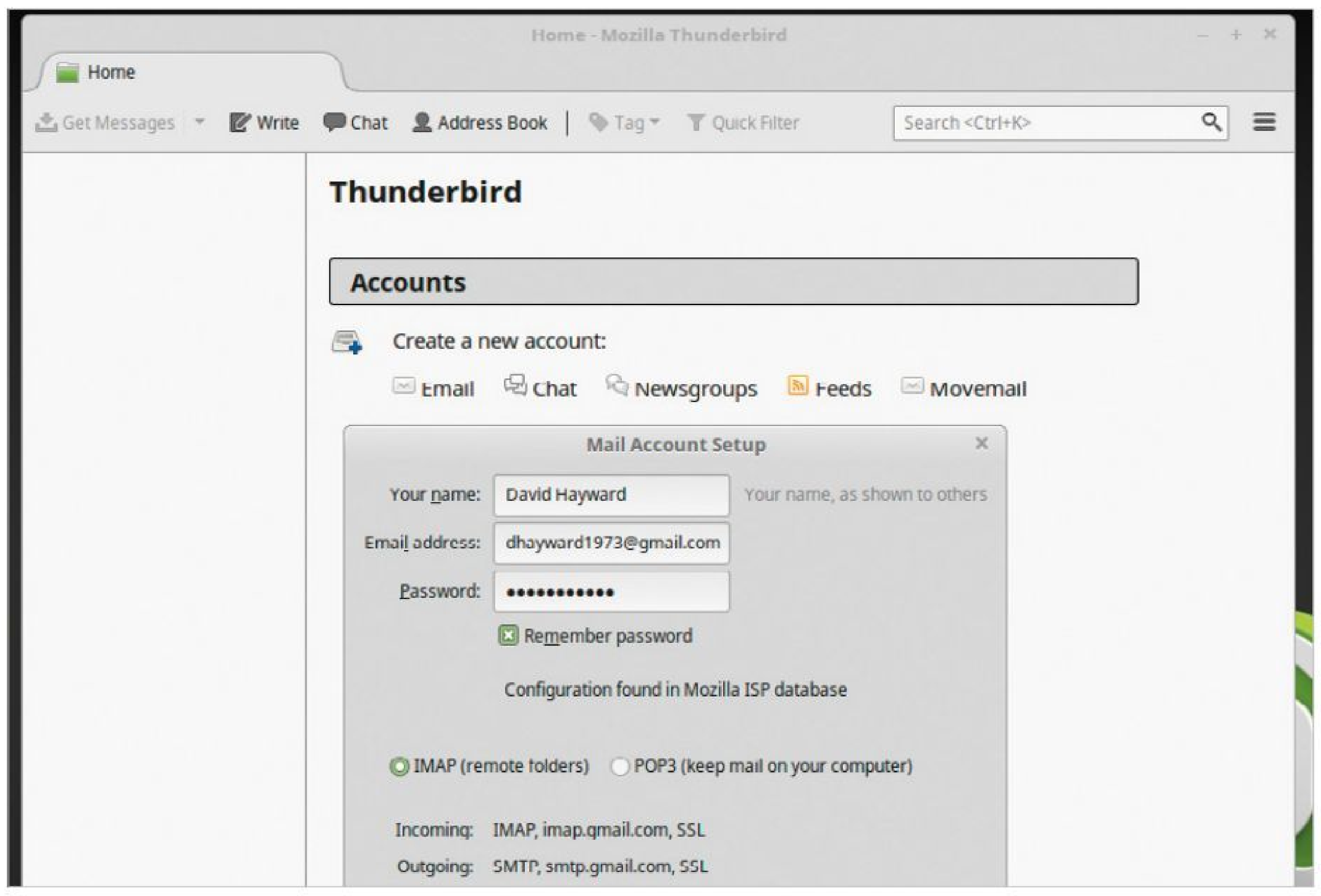
The search terms used are sent to Mozilla (Privacy Policy) and to 3rd party email providers gandi.net (Privacy Policy, Terms of Service) to find available email addresses.

STEP 4 The first part of setting up your existing email is to enter your details: name, current email address and the password you use to access your current email address. Don't forget to tick the Remember Password box to prevent you from having to enter it every time it's accessed; unless you have specific security reasons.



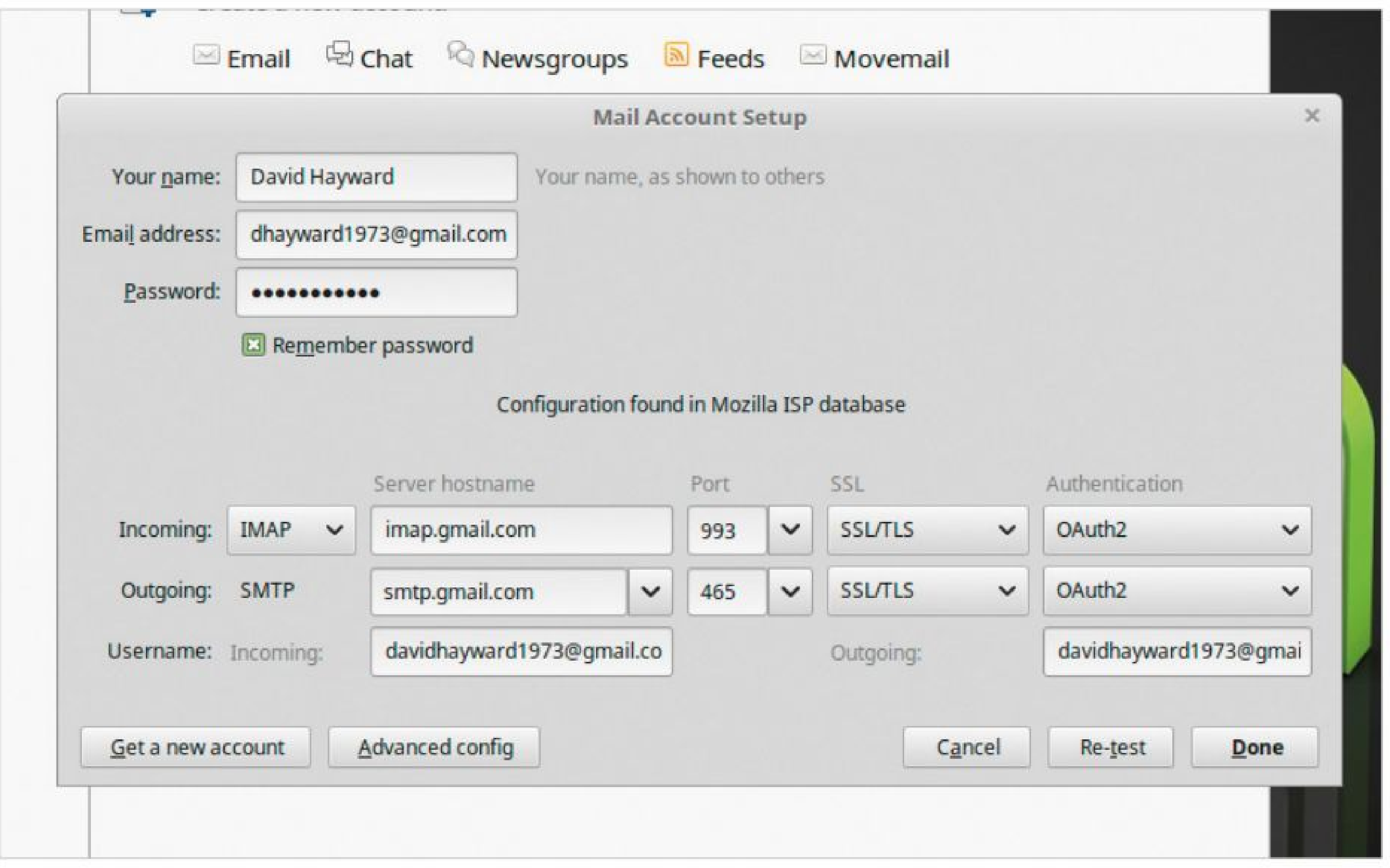
Your name: David Hayward — Your name, as shown to others
Email address: dhayward1973@gmail.com
Password: ••••••••••••
☒ Remember password

STEP 5 When you press the Continue button, Thunderbird will begin to automatically set up access to the email provider. If you use Gmail, for example, the relevant settings are configured for you. If your email provider's details aren't set up correctly, you need to do this manually.


Home - Mozilla Thunderbird
Home
Get Messages
Write
Chat
Address Book
Tag
Quick Filter
Search <Ctrl+K>
Thunderbird
Accounts
Create a new account:
Email
Chat
Newsgroups
Feeds
Movemail
Mail Account Setup

Your name: David Hayward (Your name, as shown to others)
Email address: dhayward1973@gmail.com
Password: •••••••••••
☑ Remember password
Configuration found in Mozilla ISP database
● IMAP (remote folders) ○ POP3 (keep mail on your computer)
Incoming: IMAP, imap.gmail.com, SSL
Outgoing: SMTP, smtp.gmail.com, SSL

STEP 6 To manually set up your email provider's server settings, click on the Manual Config button. Then you need to look up the email provider's unique incoming and outgoing server names, ports and other options. These you can usually find by searching the provider's FAQs, Support or Forum pages.

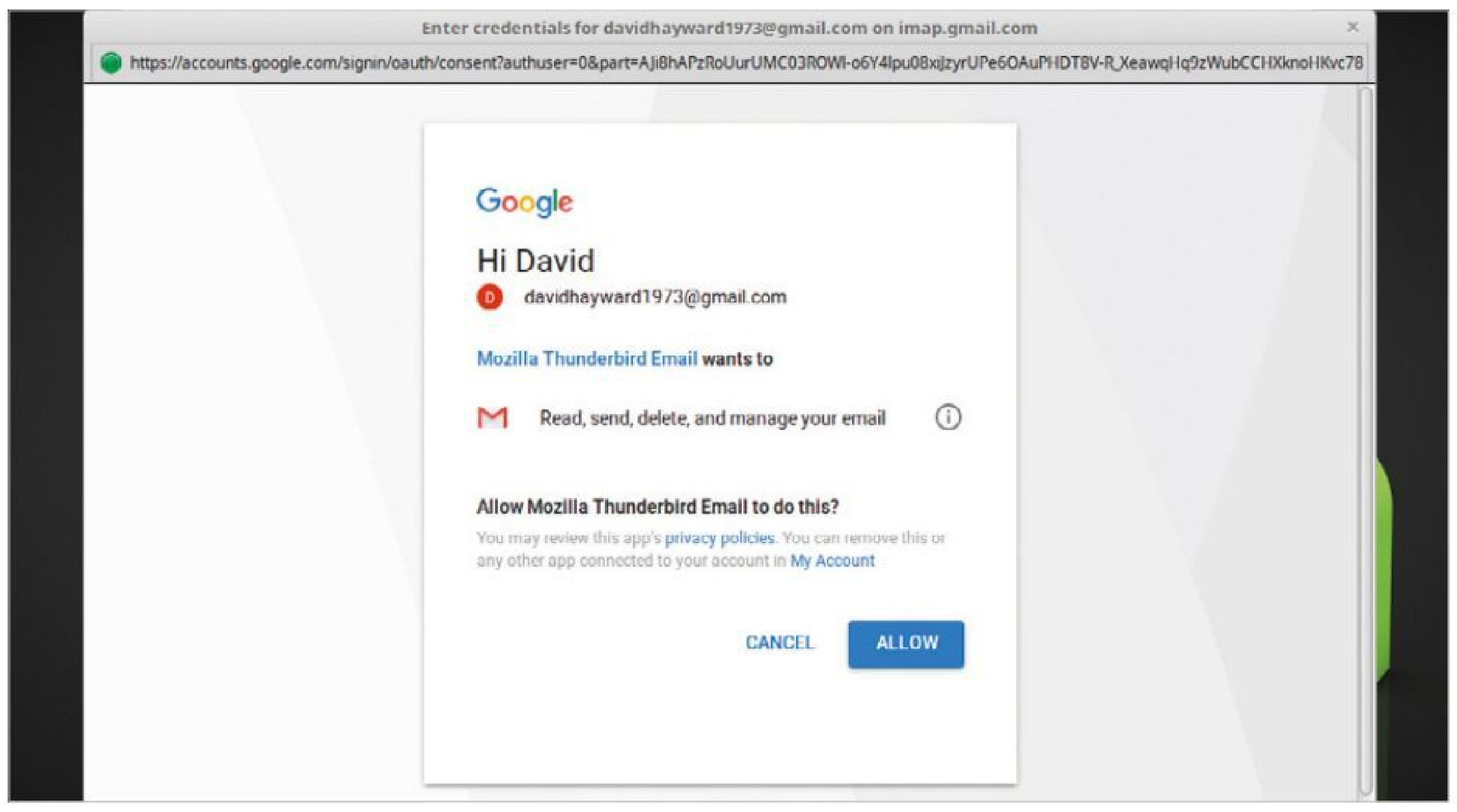

Email
Chat
Newsgroups
Feeds
Movemail
Mail Account Setup
Get a new account
Advanced config
Cancel
Re-test
Done

Your name: David Hayward (Your name, as shown to others)
Email address: dhayward1973@gmail.com
Password: •••••••••••
☑ Remember password
Configuration found in Mozilla ISP database

		Server hostname	Port	SSL	Authentication
Incoming:	IMAP	imap.gmail.com	993	SSL/TLS	OAuth2
Outgoing:	SMTP	smtp.gmail.com	465	SSL/TLS	OAuth2

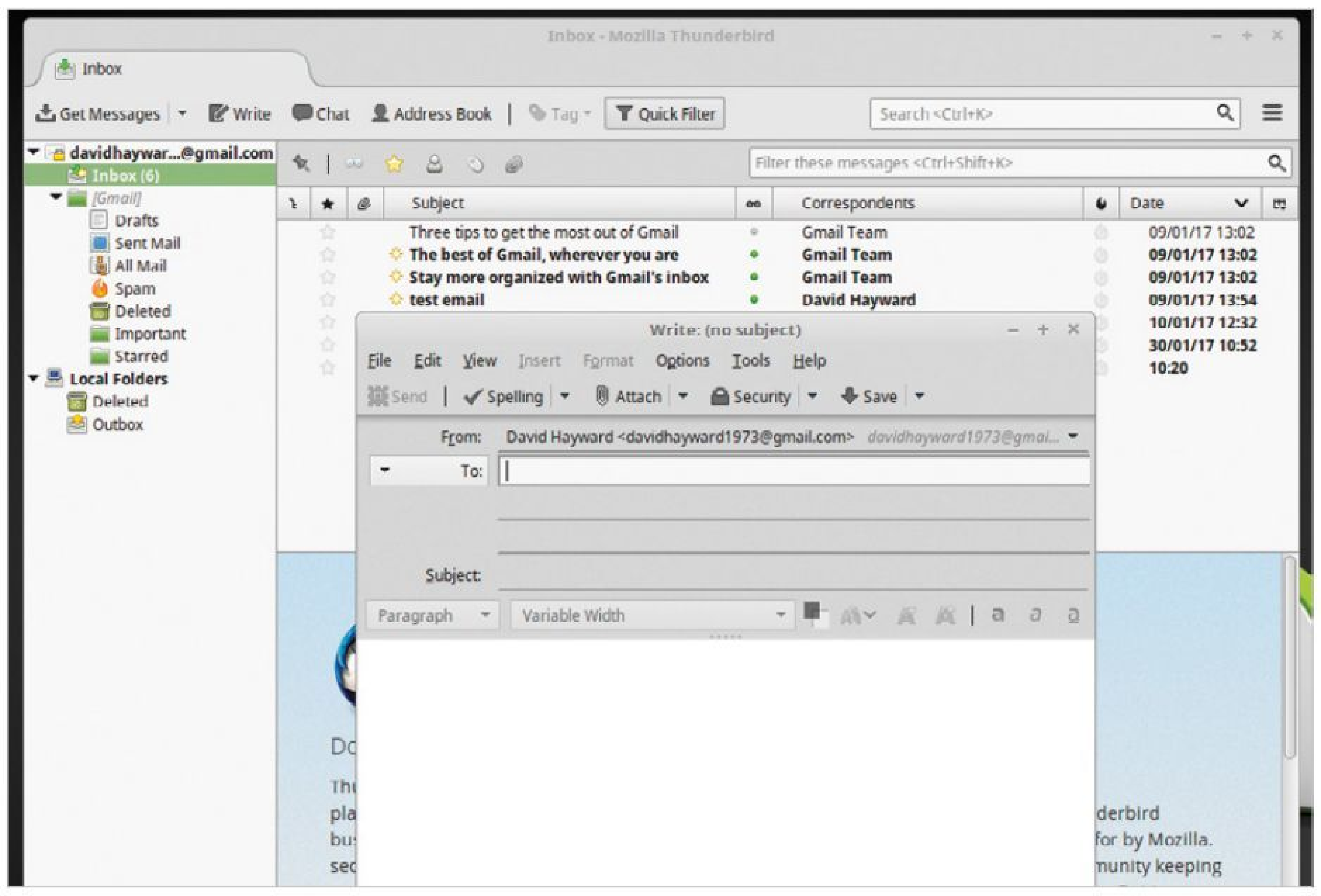
Username: Incoming: davidhayward1973@gmail.co Outgoing: davidhayward1973@gmai

STEP 7 If the settings are correct click the Done button. Depending on the provider, you may need to enter the account details in a separate window, such as the Gmail example here; username/email address and password. You may also be asked to allow Thunderbird access to view and manage the mail account. For everything to work correctly, click on Allow.


Enter credentials for davidhayward1973@gmail.com on imap.gmail.com
Google
CANCEL
ALLOW

Hi David
davidhayward1973@gmail.com
Mozilla Thunderbird Email wants to
Read, send, delete, and manage your email
Allow Mozilla Thunderbird Email to do this?
You may review this app's privacy policies. You can remove this or any other app connected to your account in My Account

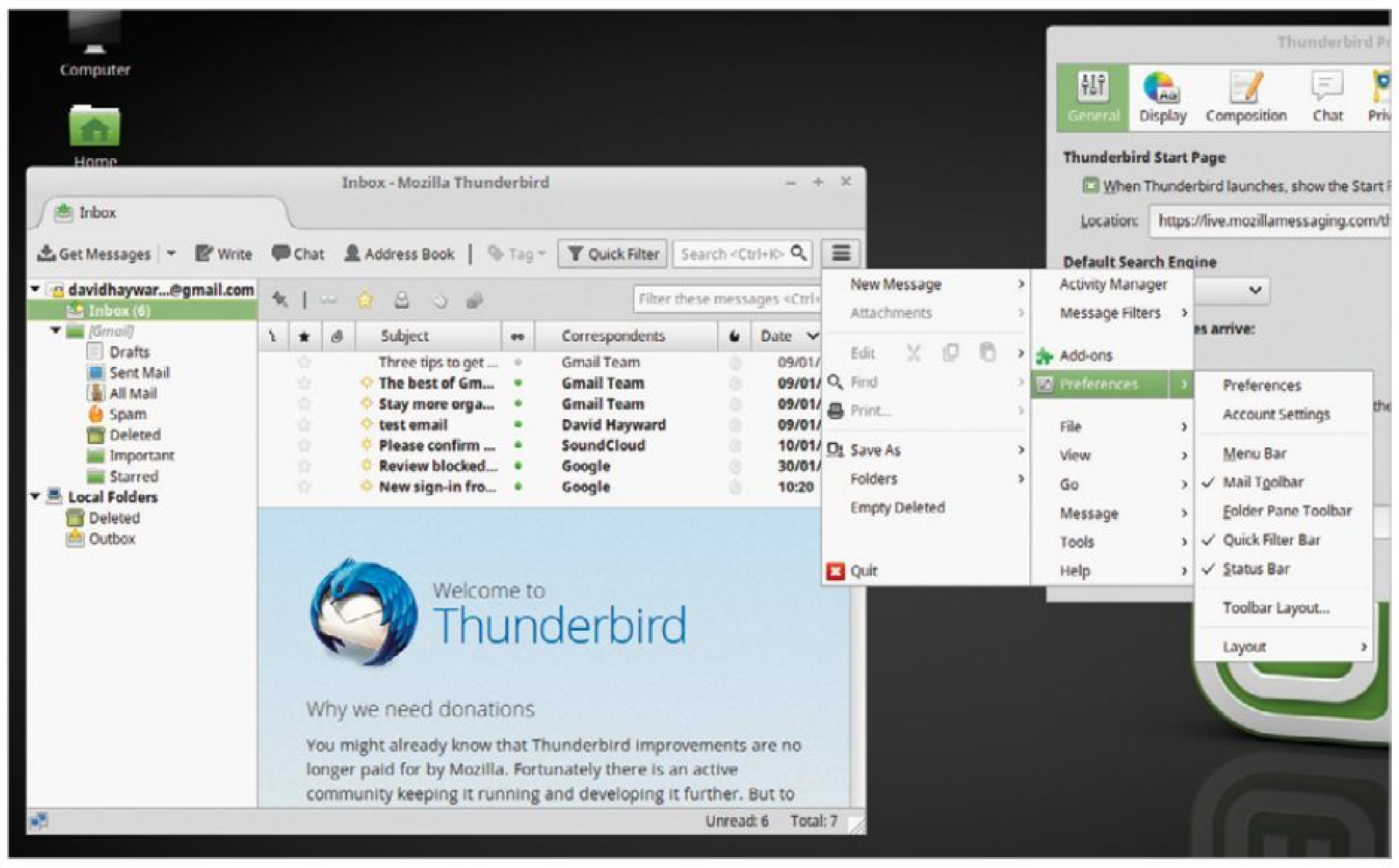
STEP 8 Thunderbird should now be set up and actively working with your current email provider. With luck, you can see your emails in the Inbox section, under your email address in the left-hand pane. From there you can click on Get Messages to check for new mail, Write to start a new email, or check the Address Book.


Inbox - Mozilla Thunderbird
Inbox
Get Messages
Write
Chat
Address Book
Tag
Quick Filter
Search <Ctrl+K>
davidhaywar...@gmail.com
Inbox (6)
[Gmail]
Drafts
Sent Mail
All Mail
Spam
Deleted
Important
Starred
Local Folders
Deleted
Outbox
Subject
Correspondents
Date
Write: (no subject)
File Edit View Insert Format Options Tools Help
Send
Spelling
Attach
Security
Save
From:
To:
Subject:
Paragraph
Variable Width

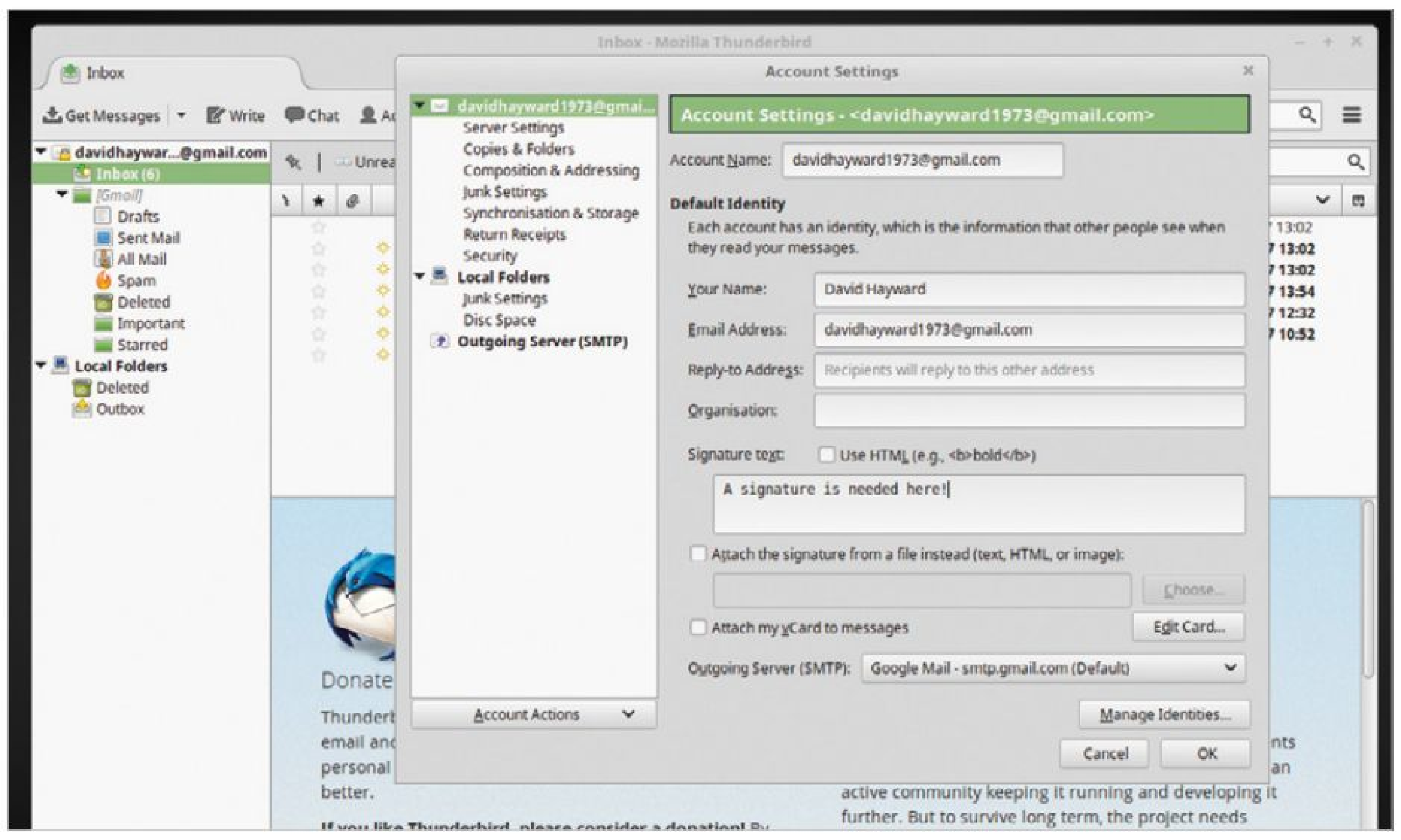
Subject	Correspondents	Date
Three tips to get the most out of Gmail	Gmail Team	09/01/17 13:02
The best of Gmail, wherever you are	Gmail Team	09/01/17 13:02
Stay more organized with Gmail's inbox	Gmail Team	09/01/17 13:02
test email	David Hayward	09/01/17 13:54

From: David Hayward <davidhayward1973@gmail.com>

STEP 9 Thunderbird works much the same way as other email clients do. Look to the far right of the Thunderbird window for three horizontal lines, click this to enter the available options. Click Edit > Preferences to allow you to specify General, Display, Privacy, Security and more options.


Computer
Home
Inbox - Mozilla Thunderbird
New Message
Attachments
Edit
Find
Print...
Save As
Folders
Empty Deleted
Quit
Activity Manager
Message Filters
Add-ons
Preferences
File
View
Go
Message
Tools
Help
Preferences
Account Settings
Menu Bar
Mail Toolbar
Folder Pane Toolbar
Quick Filter Bar
Status Bar
Toolbar Layout...
Layout
General
Display
Composition
Chat
Thunderbird Start Page
Default Search Engine
Welcome to Thunderbird
Why we need donations
Unread: 6 Total: 7

STEP 10 If you look to Preferences > Account Settings from the horizontal bars, you can set options such as a signature, server settings, folder options and further security. In the Synchronisation & Storage option, you can specify leaving messages on the server, and whether to delete older messages.


Inbox - Mozilla Thunderbird
Account Settings
Server Settings
Copies & Folders
Composition & Addressing
Junk Settings
Synchronisation & Storage
Return Receipts
Security
Local Folders
Junk Settings
Disc Space
Outgoing Server (SMTP)
Account Actions
Default Identity
Choose...
Edit Card...
Manage Identities...
Cancel
OK

Account Settings - <davidhayward1973@gmail.com>
Account Name: davidhayward1973@gmail.com
Each account has an identity, which is the information that other people see when they read your messages.
Your Name: David Hayward
Email Address: davidhayward1973@gmail.com
Reply-to Address: Recipients will reply to this other address
Organisation:
Signature text: ☐ Use HTML (e.g. bold)
A signature is needed here!
☐ Attach the signature from a file instead (text, HTML, or image):
☐ Attach my vCard to messages
Outgoing Server (SMTP): Google Mail - smtp.gmail.com (Default)

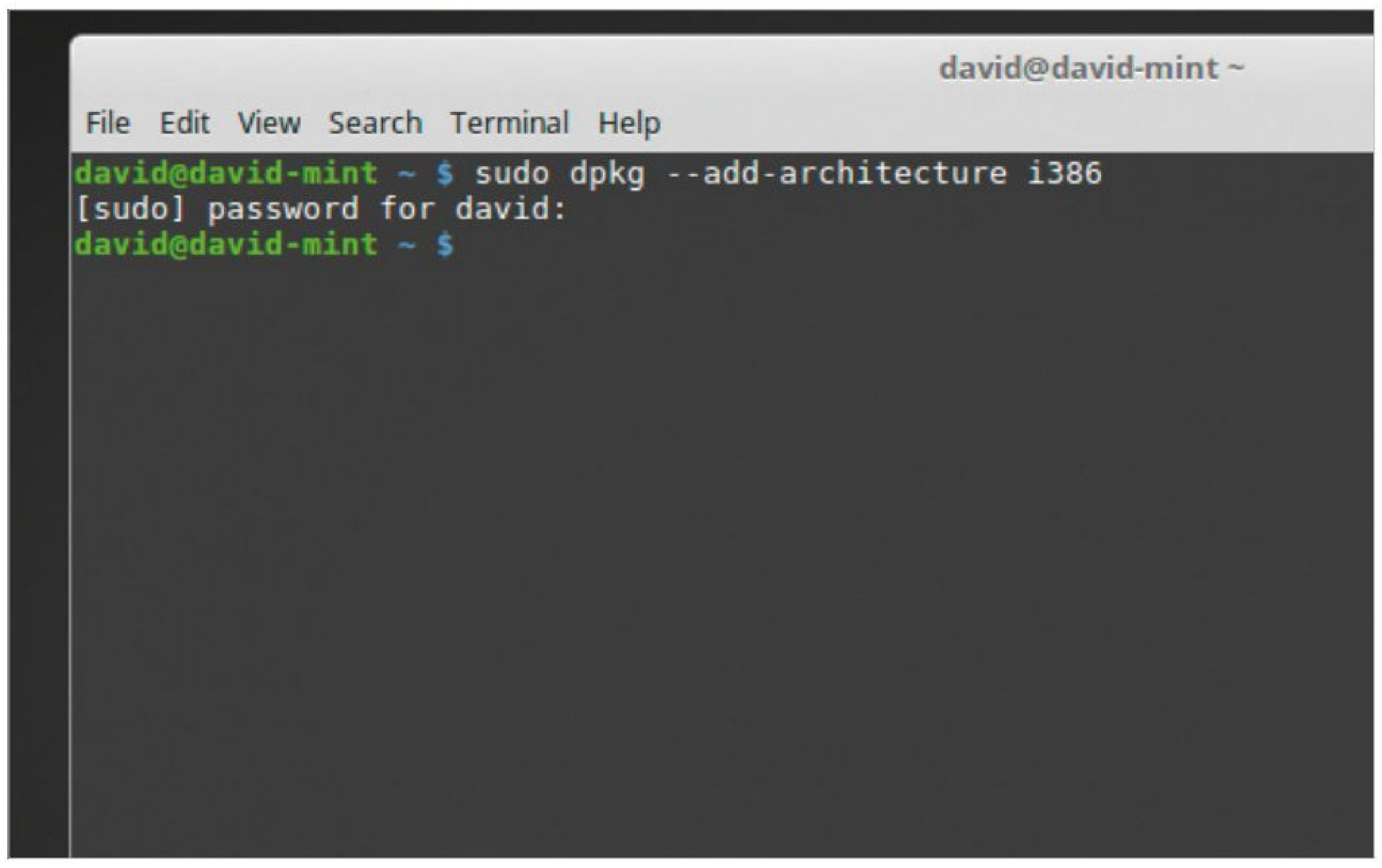
Running Windows Programs on Mint with Wine

It's possible to run a native Windows app from within Mint. By using Wine some, not all, Windows apps can work extremely well. The project is continually improving, with thousands of Windows apps running flawlessly under Wine.

WINE TASTING

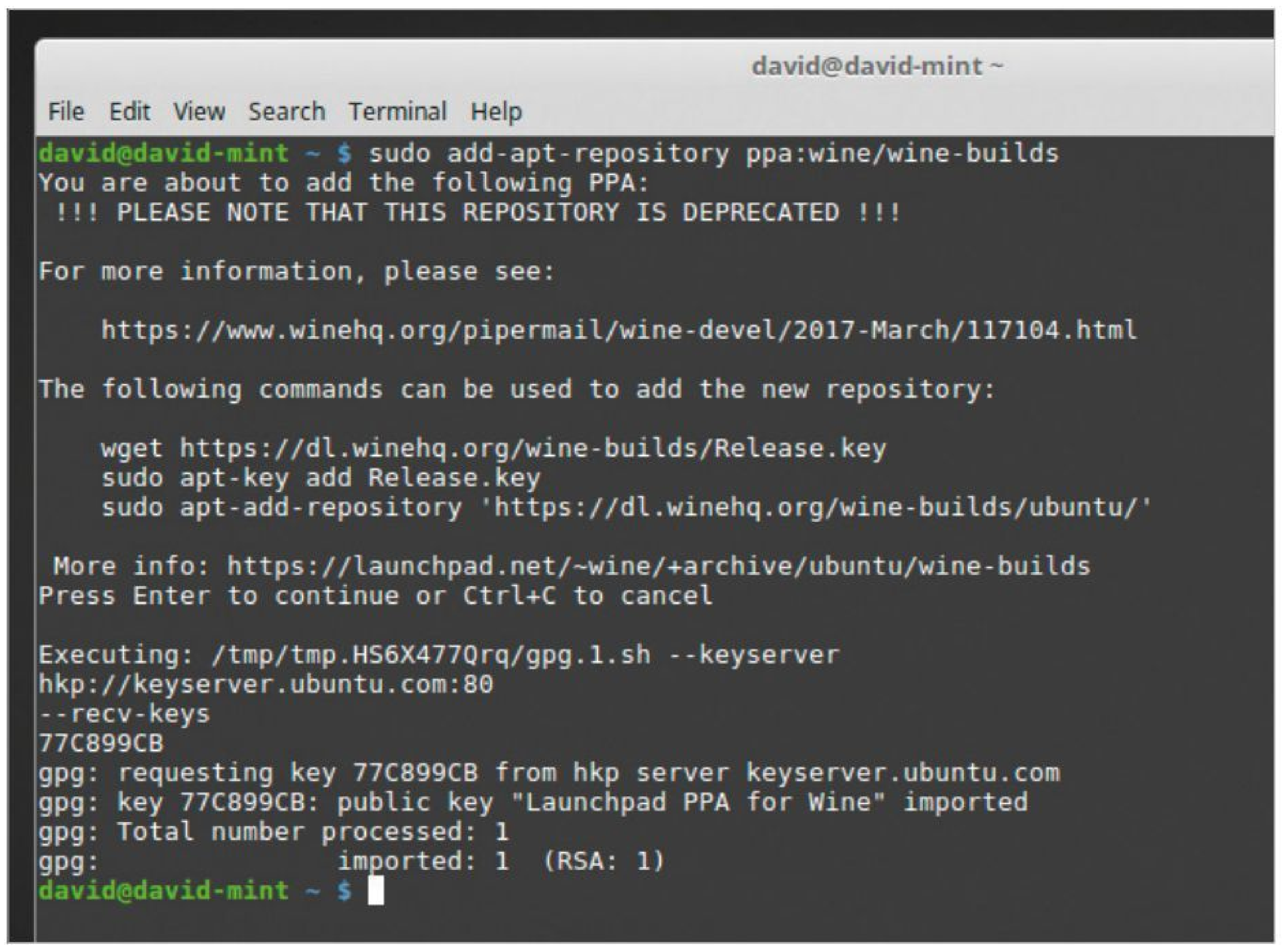
Windows-based games and apps are capable of being run with Wine (Wine Is Not an Emulator) and there's a full list available at www.appdb.winehq.org/.

STEP 1 You need to enable the 32-bit system architecture first before installing Wine, this is to allow the maximum compatibility. In the Terminal, type: `sudo dpkg --add-architecture i386`.



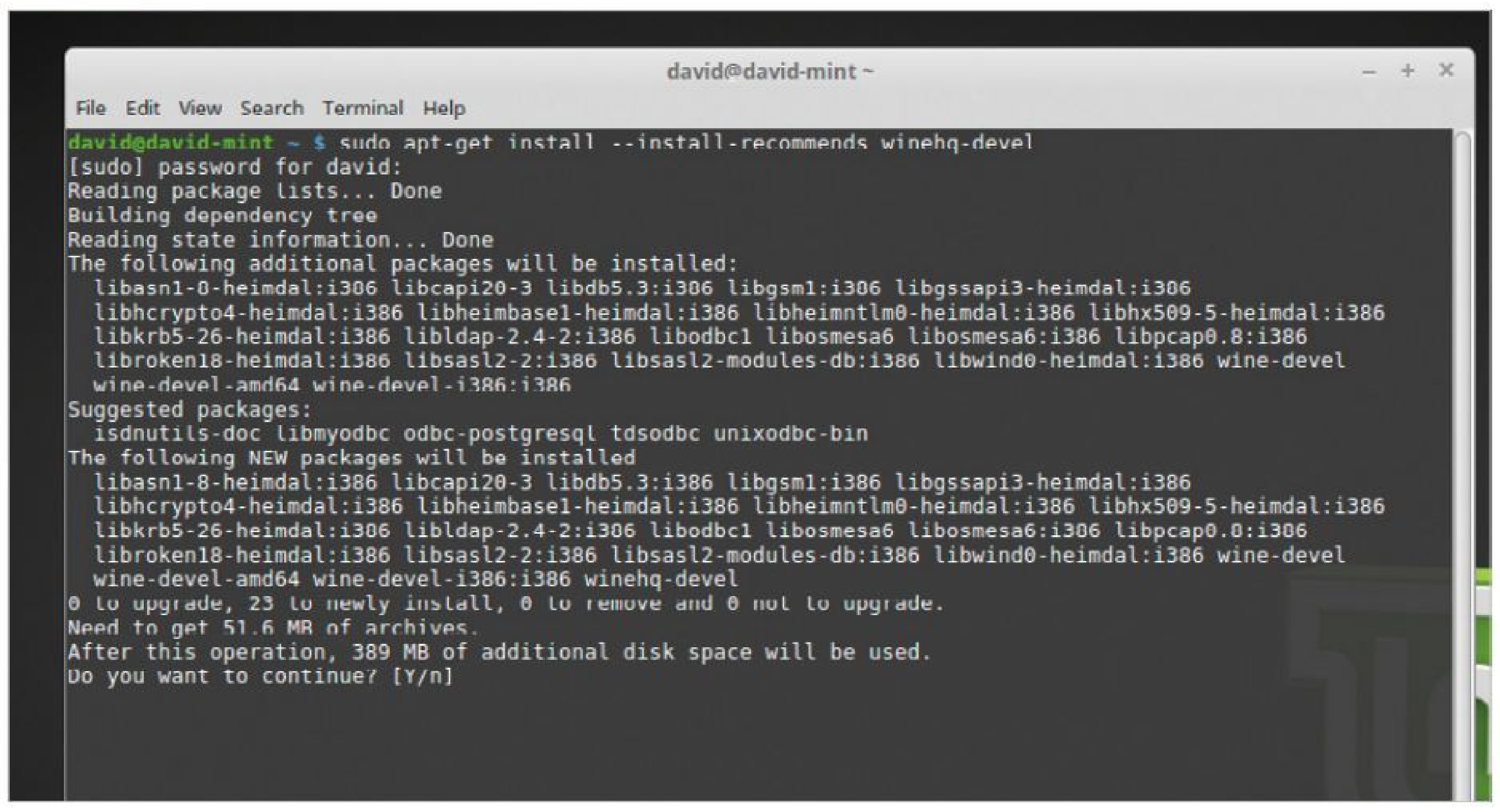
```
david@david-mint ~ $ sudo dpkg --add-architecture i386
[sudo] password for david:
david@david-mint ~ $
```

STEP 2 Now add the WineHQ respository, where you can get hold of the installation files for Wine itself. Type: `sudo add-apt-repository ppa:wine/wine-builds`. Press Enter to add the repo and continue.



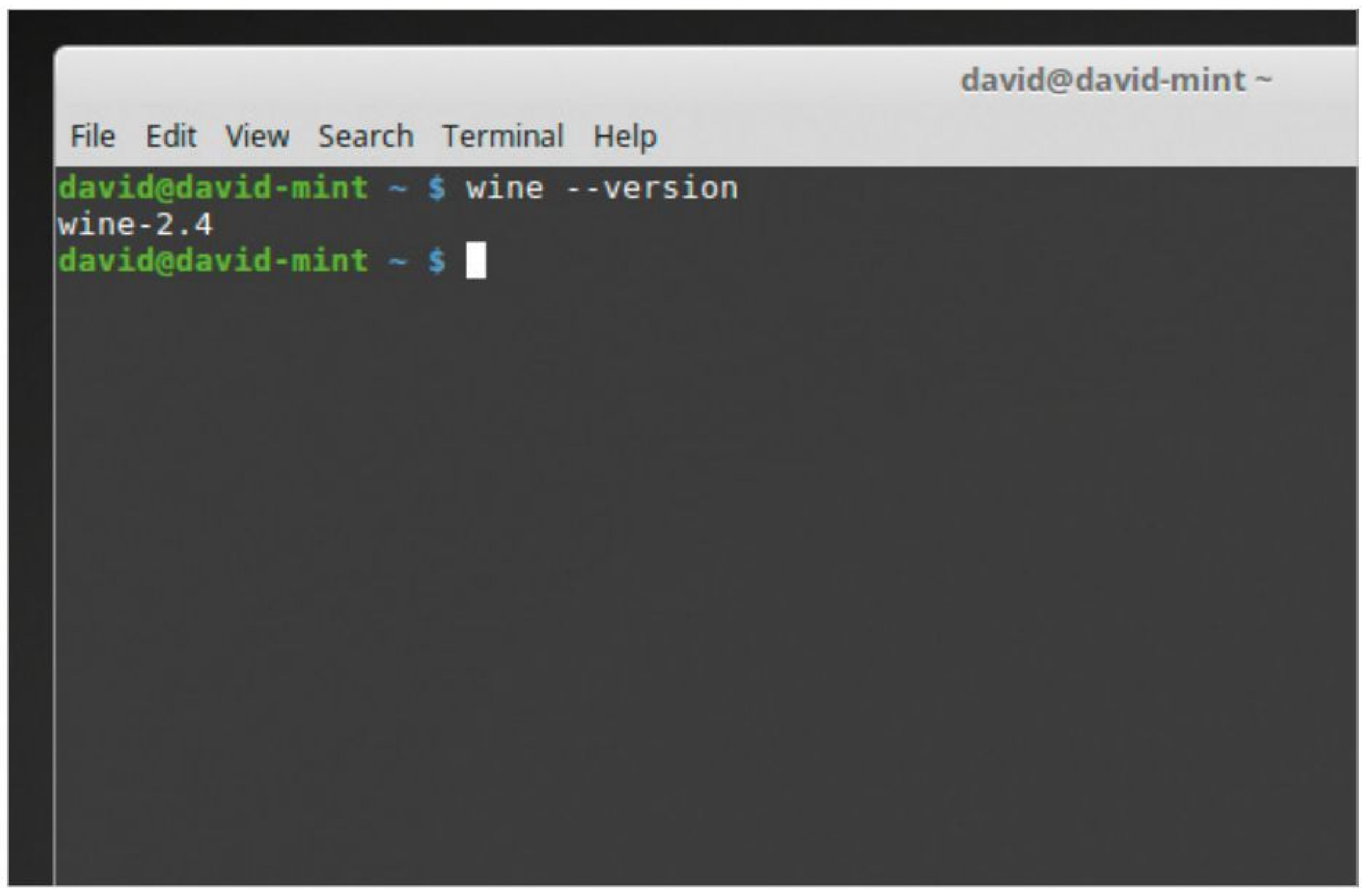
```
david@david-mint ~ $ sudo add-apt-repository ppa:wine/wine-builds
You are about to add the following PPA:
 !!! PLEASE NOTE THAT THIS REPOSITORY IS DEPRECATED !!!

For more information, please see:

    https://www.winehq.org/pipermail/wine-devel/2017-March/117104.html

The following commands can be used to add the new repository:

    wget https://dl.winehq.org/wine-builds/Release.key
    sudo apt-key add Release.key
    sudo apt-add-repository 'https://dl.winehq.org/wine-builds/ubuntu/'

 More info: https://launchpad.net/~wine/+archive/ubuntu/wine-builds
Press Enter to continue or Ctrl+C to cancel

Executing: /tmp/tmp.HS6X477Qrq/gpg.1.sh --keyserver
hkp://keyserver.ubuntu.com:80
--recv-keys
77C899CB
gpg: requesting key 77C899CB from hkp server keyserver.ubuntu.com
gpg: key 77C899CB: public key "Launchpad PPA for Wine" imported
gpg: Total number processed: 1
gpg:               imported: 1  (RSA: 1)
david@david-mint ~ $
```

STEP 3 With the new repo added, run: `sudo apt-get update`. With the system updated and using the new repo, install the latest Development Branch of Wine (the Development Branch is used by most bleeding edge Wine users) with the command: `sudo apt-get install --install-recommends winehq-devel`.



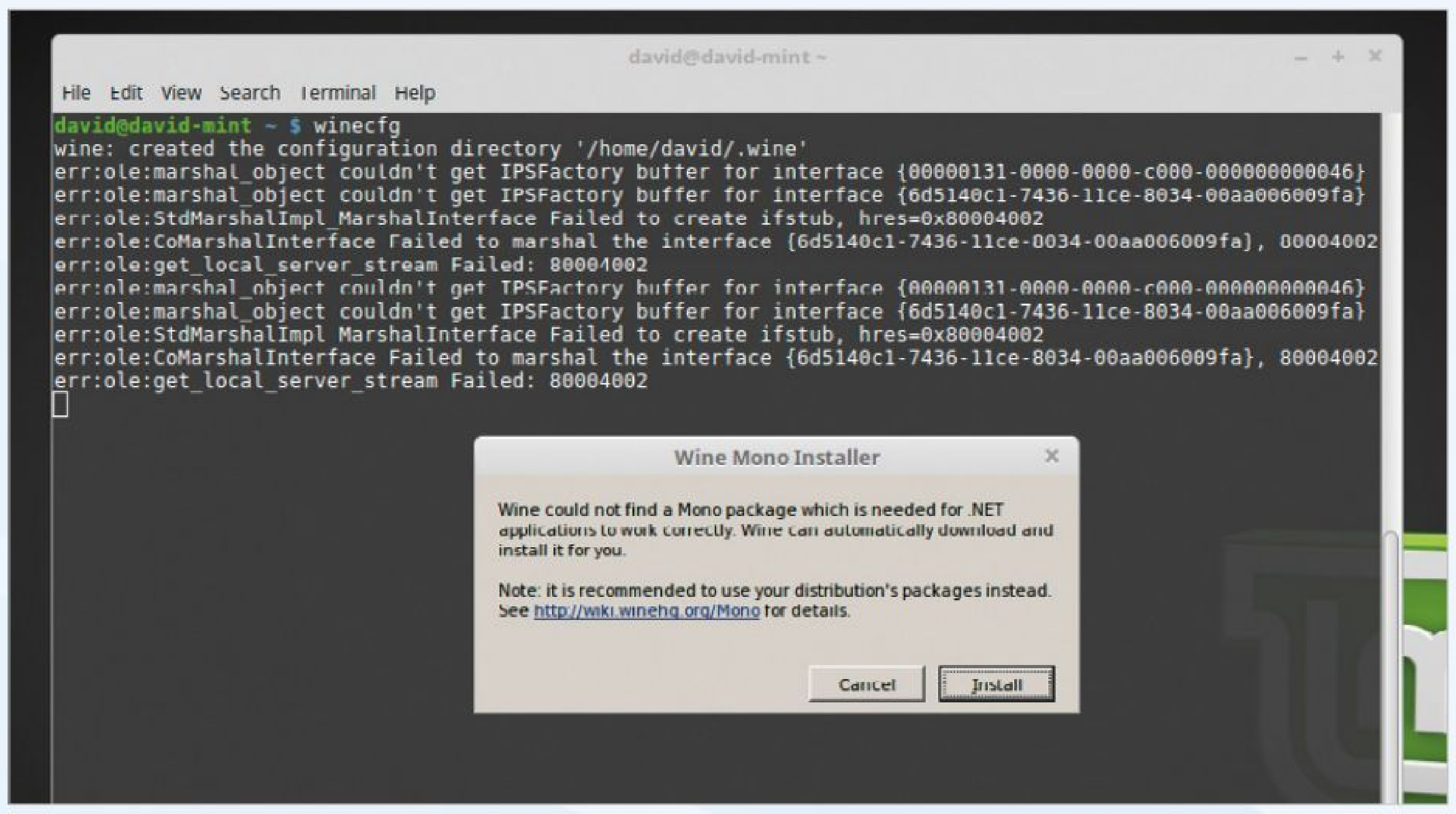
```
david@david-mint ~ $ sudo apt-get install --install-recommends winehq-devel
[sudo] password for david:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libasn1-8-heimdal:i386 libcapi20-3 libdb5.3:i386 libgsm1:i386 libgssapi3-heimdal:i386
  libhcrypto4-heimdal:i386 libheimbase1-heimdal:i386 libheimntlm0-heimdal:i386 libhx509-5-heimdal:i386
  libkrb5-26-heimdal:i386 libldap-2.4-2:i386 libodbc1 libosmesa6 libosmesa6:i386 libpcap0.8:i386
  libroken18-heimdal:i386 libsasl2-2:i386 libsasl2-modules-db:i386 libwind0-heimdal:i386 wine-devel
  wine-devel-amd64 wine-devel-i386:i386
Suggested packages:
  isdnutils-doc libmyodbc odbc-postgresql tdsodbc unixodbc-bin
The following NEW packages will be installed
  libasn1-8-heimdal:i386 libcapi20-3 libdb5.3:i386 libgsm1:i386 libgssapi3-heimdal:i386
  libhcrypto4-heimdal:i386 libheimbase1-heimdal:i386 libheimntlm0-heimdal:i386 libhx509-5-heimdal:i386
  libkrb5-26-heimdal:i386 libldap-2.4-2:i386 libodbc1 libosmesa6 libosmesa6:i386 libpcap0.8:i386
  libroken18-heimdal:i386 libsasl2-2:i386 libsasl2-modules-db:i386 libwind0-heimdal:i386 wine-devel
  wine-devel-amd64 wine-devel-i386:i386 winehq-devel
0 to upgrade, 23 to newly install, 0 to remove and 0 not to upgrade.
Need to get 51.6 MB of archives.
After this operation, 389 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

STEP 4 The installation for Wine is quite hefty, over 600MB. Once it's all done, you can check the installed version with `wine --version`. At the present time of writing, the latest development version was wine-2.4, which fixes numerous bugs associated with the running of several games and apps, as well as fixes for the core Wine files.



```
david@david-mint ~ $ wine --version
wine-2.4
david@david-mint ~ $
```

STEP 5 Still in the Terminal, enter: `winecfg`. This will launch the Wine configuration wizard, which will begin the process of setting up Wine for use. The first message box will ask you to install an extra package to handle .NET applications. Click on the Install button to continue. There may be more packages to install, so continue clicking Install until done.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ winecfg
wine: created the configuration directory '/home/david/.wine'
err:ole:marshal_object couldn't get IPSFactory buffer for interface {00000131-0000-0000-c000-000000000046}
err:ole:marshal_object couldn't get IPSFactory buffer for interface {6d5140c1-7436-11ce-8034-00aa006009fa}
err:ole:StdMarshalImpl_MarshalInterface Failed to create ifstub, hres=0x80004002
err:ole:CoMarshalInterface Failed to marshal the interface {6d5140c1-7436-11ce-8034-00aa006009fa}, 80004002
err:ole:get_local_server_stream Failed: 80004002
err:ole:marshal_object couldn't get IPSFactory buffer for interface {00000131-0000-0000-c000-000000000046}
err:ole:marshal_object couldn't get IPSFactory buffer for interface {6d5140c1-7436-11ce-8034-00aa006009fa}
err:ole:StdMarshalImpl_MarshalInterface Failed to create ifstub, hres=0x80004002
err:ole:CoMarshalInterface Failed to marshal the interface {6d5140c1-7436-11ce-8034-00aa006009fa}, 80004002
err:ole:get_local_server_stream Failed: 80004002
```

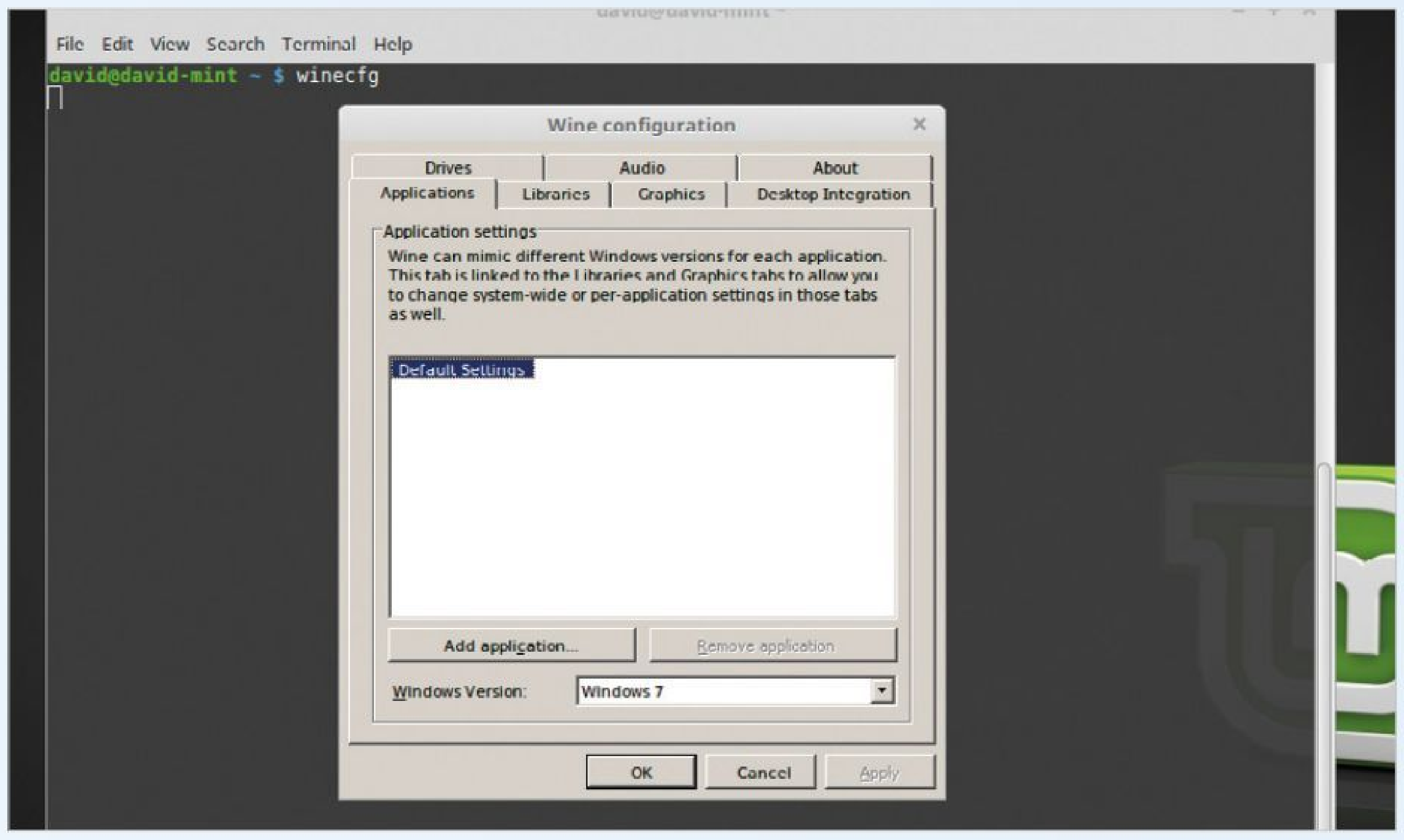
Wine Mono Installer

Wine could not find a Mono package which is needed for .NET applications to work correctly. Wine can automatically download and install it for you.

Note: it is recommended to use your distribution's packages instead. See http://wiki.winehq.org/Mono for details.

Cancel
Install

STEP 6 When the installations of the extra packages are complete, press **Enter** in the Terminal to return you to the command prompt. Type: `winecfg` again and the Windows Configuration app will be displayed. The Applications tab is where you can alter the way Wine runs Windows apps, specifying a certain version of Windows, for example.


File Edit View Search Terminal Help

```
david@david-mint ~ $ winecfg
```

Wine configuration
Drives
Audio
About
Applications
Libraries
Graphics
Desktop Integration

Application settings

Wine can mimic different Windows versions for each application. This tab is linked to the Libraries and Graphics tabs to allow you to change system-wide or per-application settings in those tabs as well.

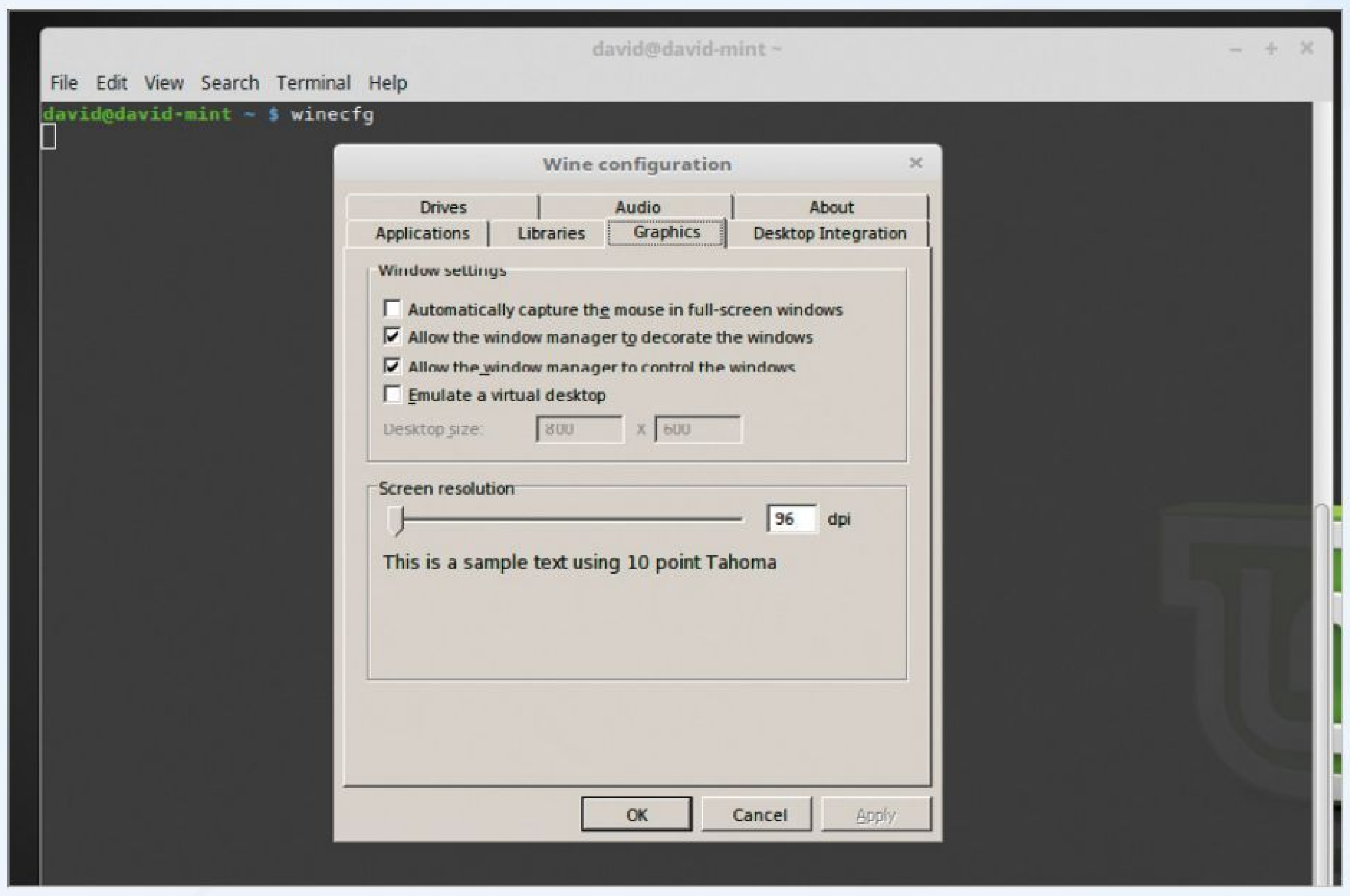
Default Settings

Add application...
Remove application

Windows Version: Windows 7

OK
Cancel
Apply

STEP 7 The Libraries tab allows you to alter any core Windows files to suit the app you're running. Generally speaking, the defaults will suffice most apps. The Graphics tab can change the display of any running Windows apps, using an emulated virtual desktop.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ winecfg
```

Wine configuration
Drives
Audio
About
Applications
Libraries
Graphics
Desktop Integration

Window settings

☐ Automatically capture the mouse in full-screen windows
☑ Allow the window manager to decorate the windows
☑ Allow the window manager to control the windows
☐ Emulate a virtual desktop

Desktop size: 800 x 600

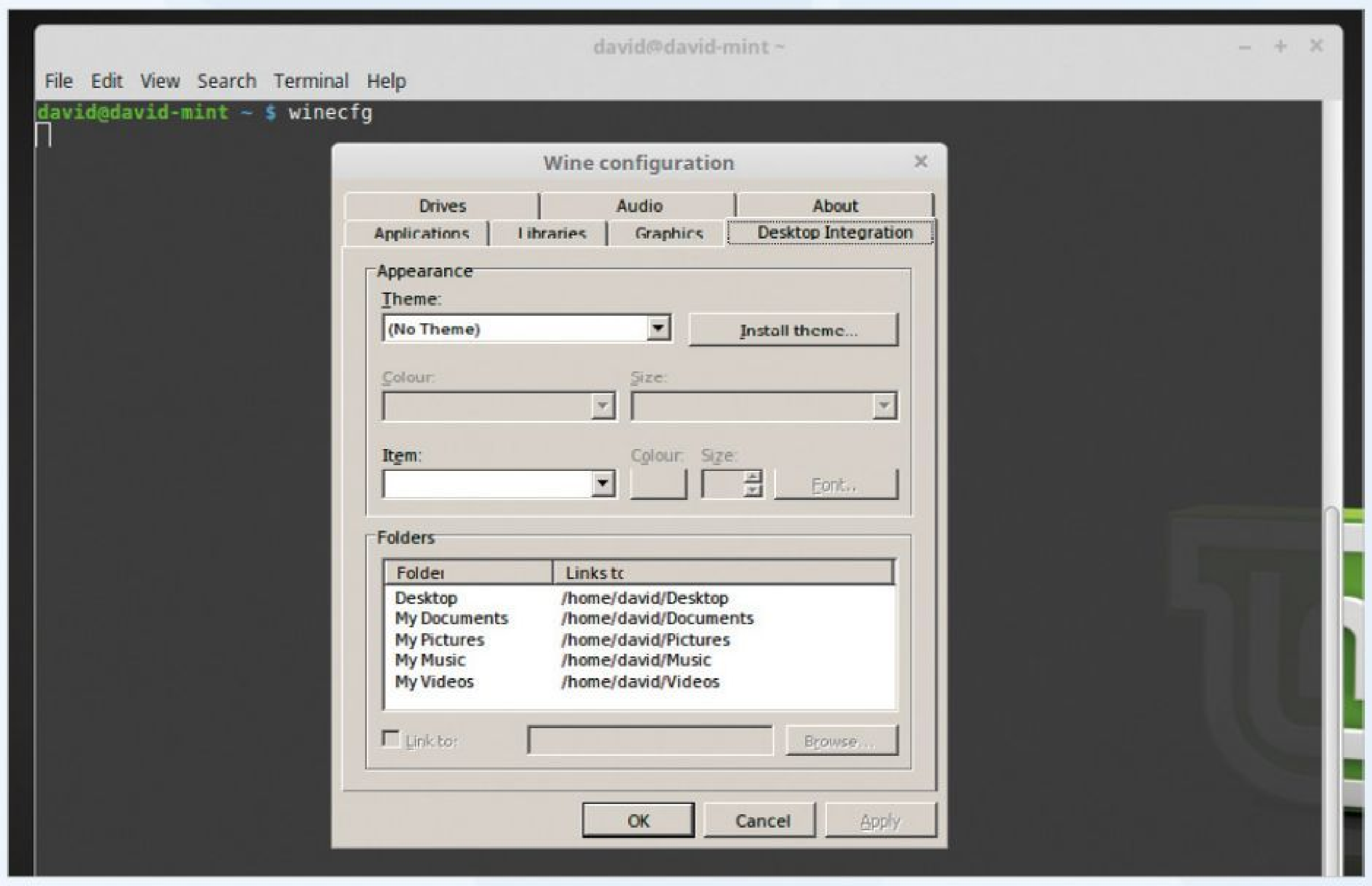
Screen resolution

96 dpi

This is a sample text using 10 point Tahoma

OK
Cancel
Apply

STEP 8 The Desktop Integration tab lets you change the Windows theme and it will link the usual My Documents, Pictures, Videos and so on with your Linux Mint Home folders: Documents, Pictures etc.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ winecfg
```

Wine configuration
Drives
Audio
About
Applications
Libraries
Graphics
Desktop Integration

Appearance

Theme: (No Theme)

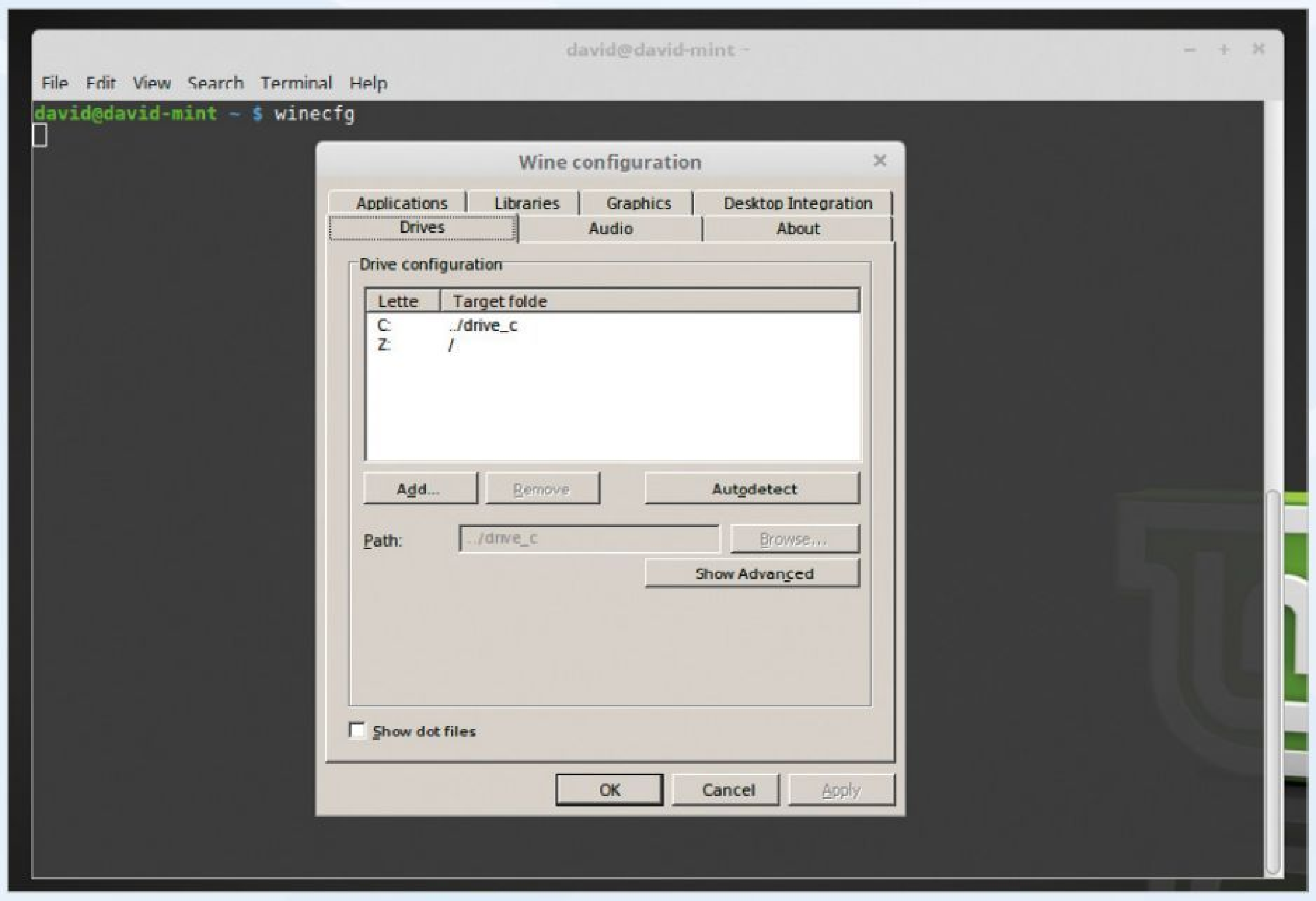
Install theme...
Colour:
Size:
Item:
Colour:
Size:
Font...

Folders

Folder	Links to
Desktop	/home/david/Desktop
My Documents	/home/david/Documents
My Pictures	/home/david/Pictures
My Music	/home/david/Music
My Videos	/home/david/Videos

☐ Link to:
Browse...
OK
Cancel
Apply

STEP 9 In the Drives tab you can specify a folder on your Mint system to be presented as a Windows drive letter. For example, any Windows games stored in a ~/Downloads/WinGames folder, can be mapped to a D: drive in Wine.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ winecfg
```

Wine configuration
Applications
Libraries
Graphics
Desktop Integration
Drives
Audio
About

Drive configuration

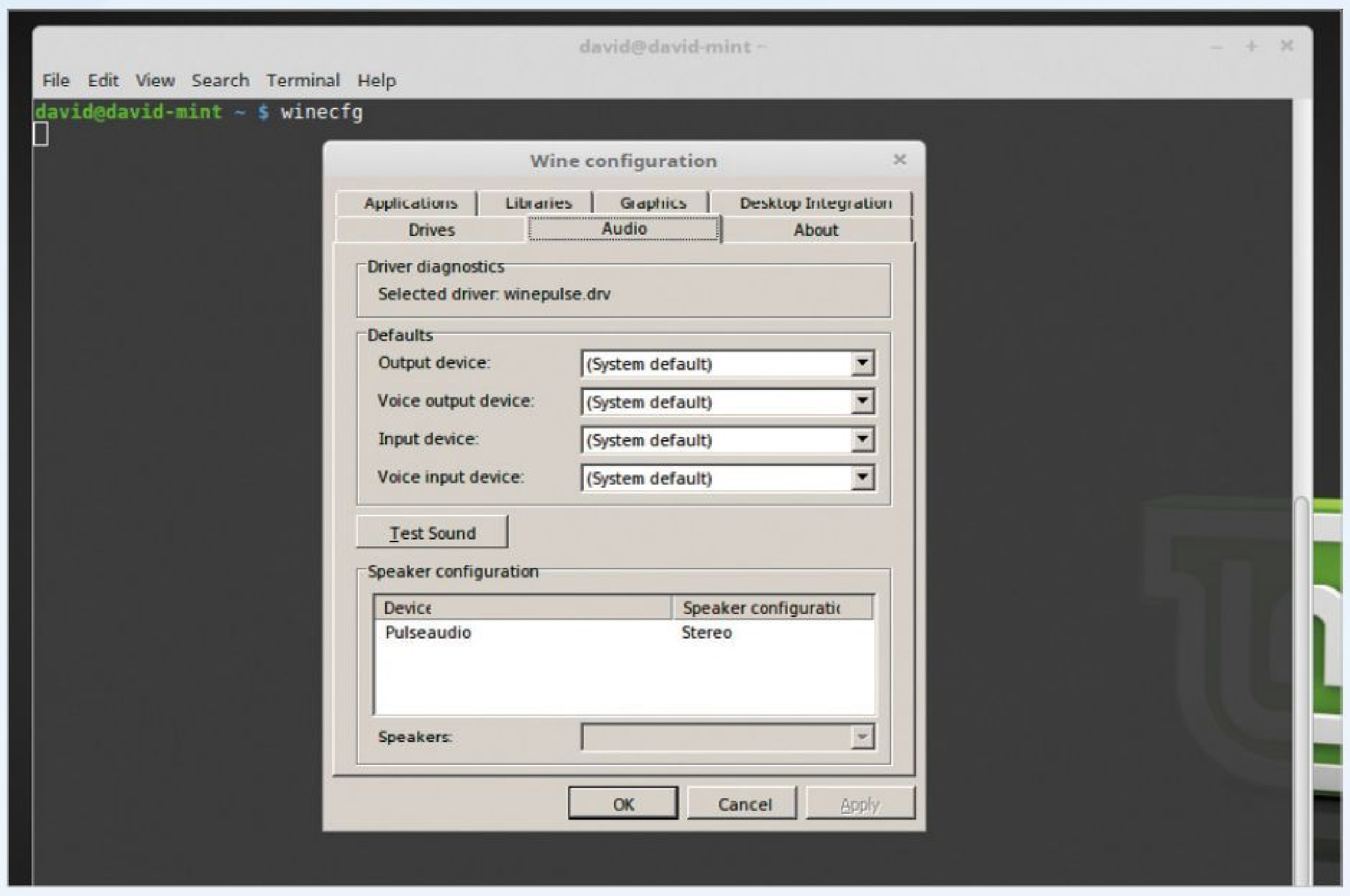
Lette	Target folde
C:	../drive_c
Z:	/

Add...
Remove
Autodetect

Path: ../drive_c

Browse...
Show Advanced
☐ Show dot files
OK
Cancel
Apply

STEP 10 The Audio tab will ensure that any sounds generated from the Windows apps will be audible through your Mint sound setup. You can click the Test Sound button to make sure it's all working.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ winecfg
```

Wine configuration
Applications
Libraries
Graphics
Desktop Integration
Drives
Audio
About

Driver diagnostics

Selected driver: winepulse.drv

Defaults

Output device: (System default)
Voice output device: (System default)
Input device: (System default)
Voice input device: (System default)

Test Sound

Speaker configuration

Device	Speaker configuratio
Pulseaudio	Stereo

Speakers:

OK
Cancel
Apply

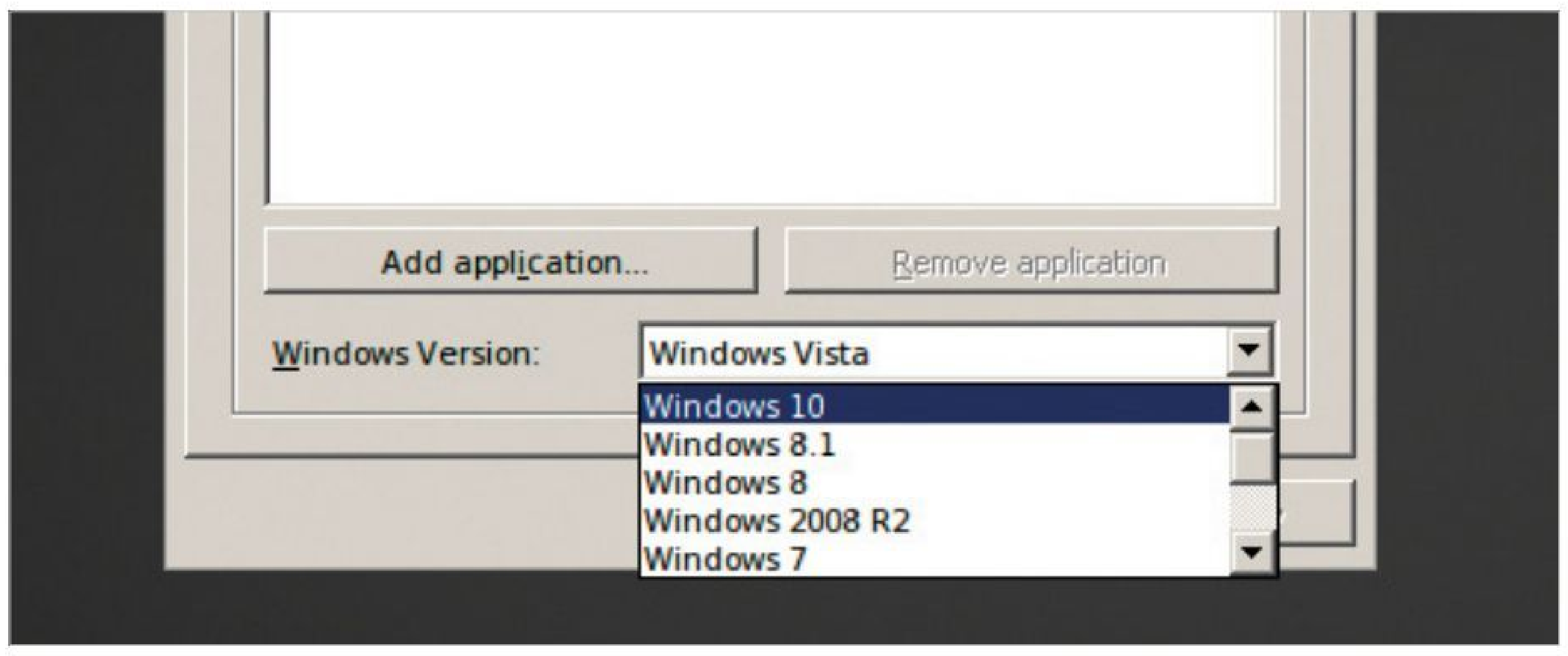
Installing a Windows Program in Mint with Wine

With Wine running, you can begin to install some Windows programs. Like we said, not all Windows programs are going to work from the start as some require configuring within Winecfg; others may not work at all. Experimenting is key.

WINE APPS

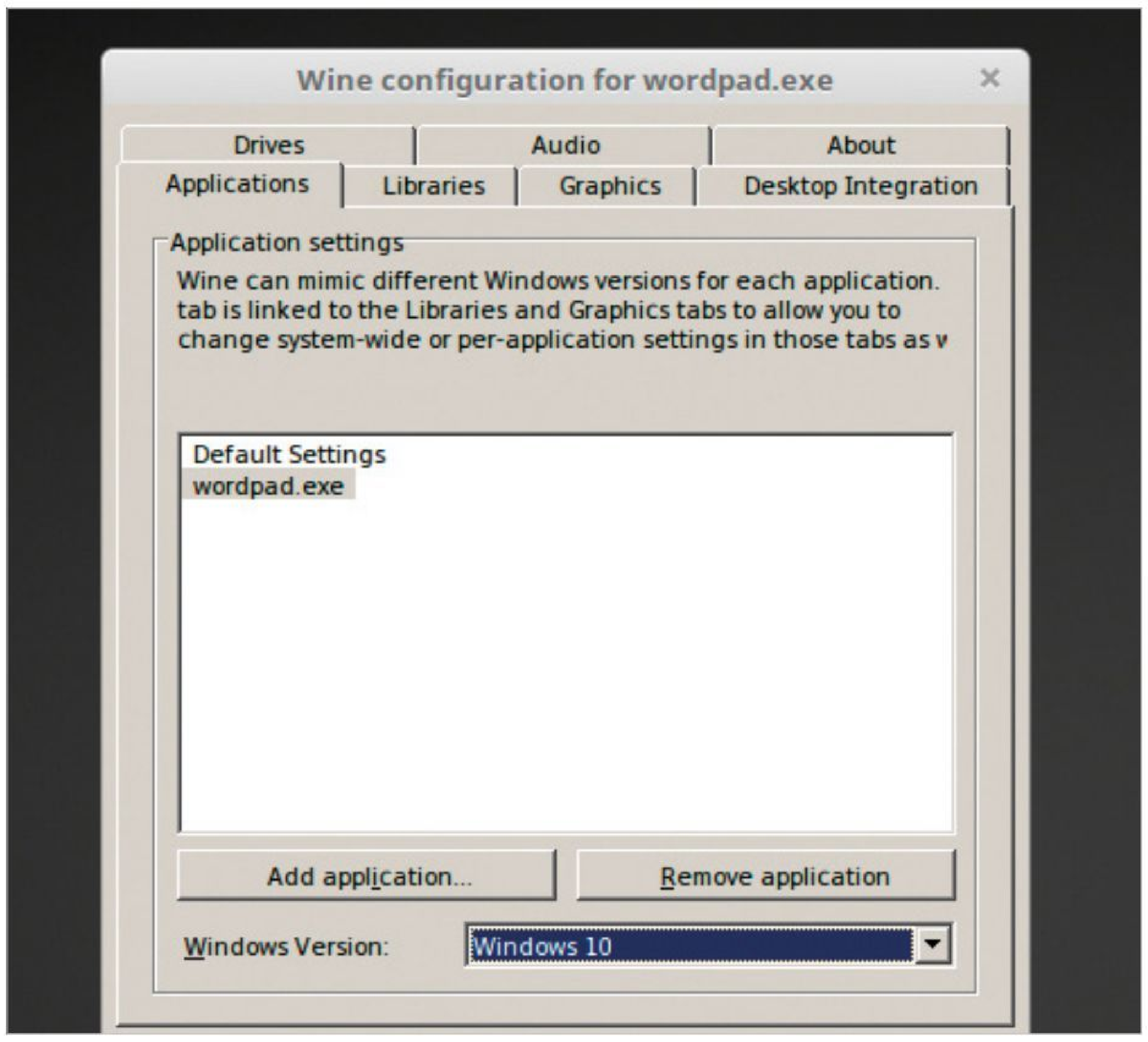
Wine isn't always going to work the way you want it to. It's running a program that wasn't designed for the operating system, after all. It's still fun to use though.

STEP 1 Let's begin with one of the built-in Windows apps that comes with Wine, WordPad. If you haven't already, start by running `winecfg`. When it launches in the Application tab, click on the drop-down box next to Windows Version and set it to Windows 10.


Add application...
Remove application
Windows 10
Windows 8.1
Windows 8
Windows 2008 R2
Windows 7

Windows Version: Windows Vista

STEP 2 Now click on the Add Application button and using the File Manager window navigate to `Program Files (x86) > Windows NT > Accessories`. Click on wordpad.exe, then open. This will put the app into the Application Settings window list. You may need to change the app's Windows Version to 10 again.

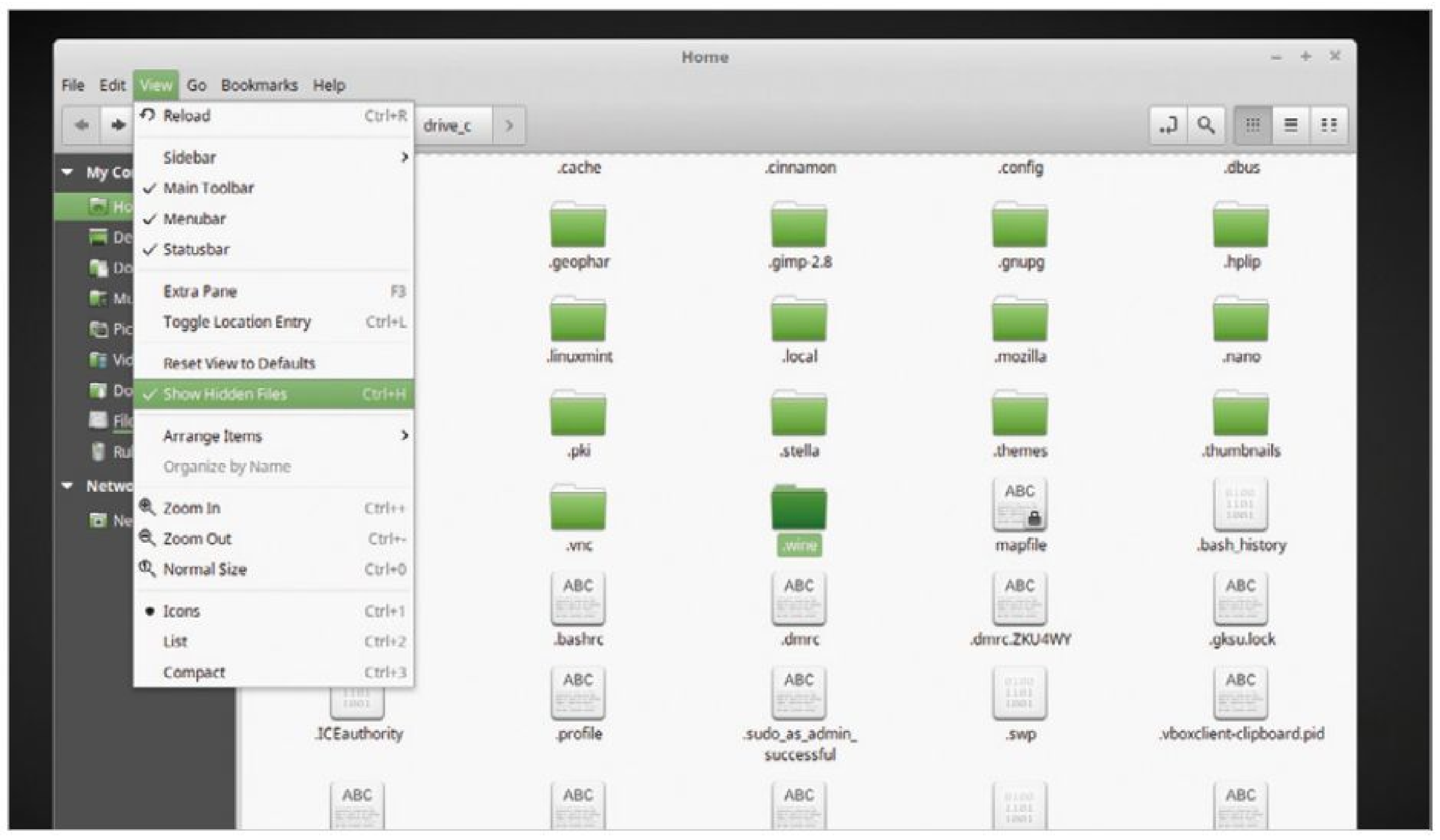

Wine configuration for wordpad.exe
Drives
Audio
About
Applications
Libraries
Graphics
Desktop Integration
Application settings
Add application...
Remove application

Wine can mimic different Windows versions for each application. tab is linked to the Libraries and Graphics tabs to allow you to change system-wide or per-application settings in those tabs as w

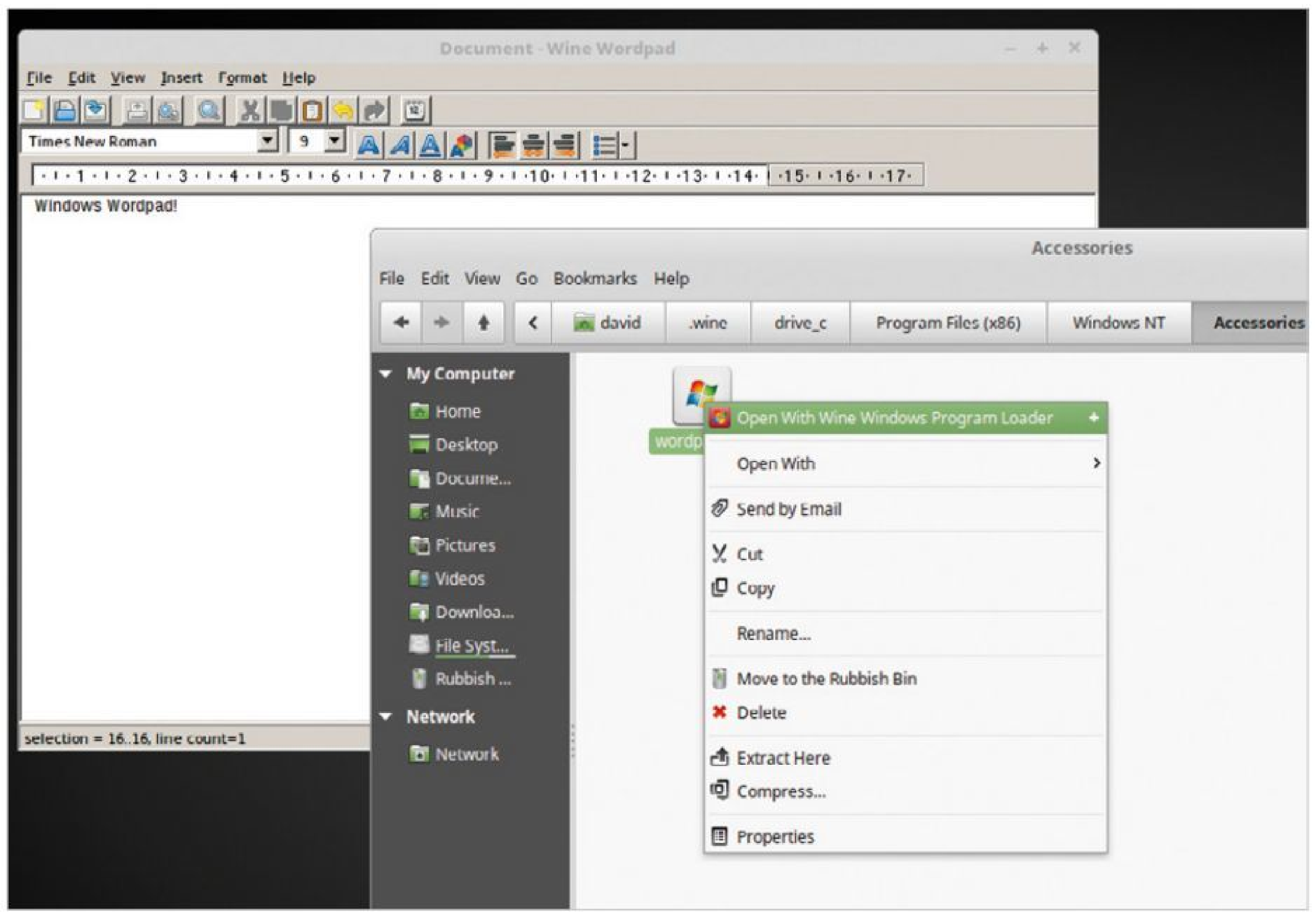
Default Settings
wordpad.exe

Windows Version: Windows 10

STEP 3 Click the OK button to close wincfg. You can now navigate to where the fake C: drive is installed in Mint. You can find this at `~/.wine/drive_c`. The full stop preceding the wine folder indicates a hidden folder. To enable viewing of hidden folders in Nemo, click on View and choose Show Hidden Files.

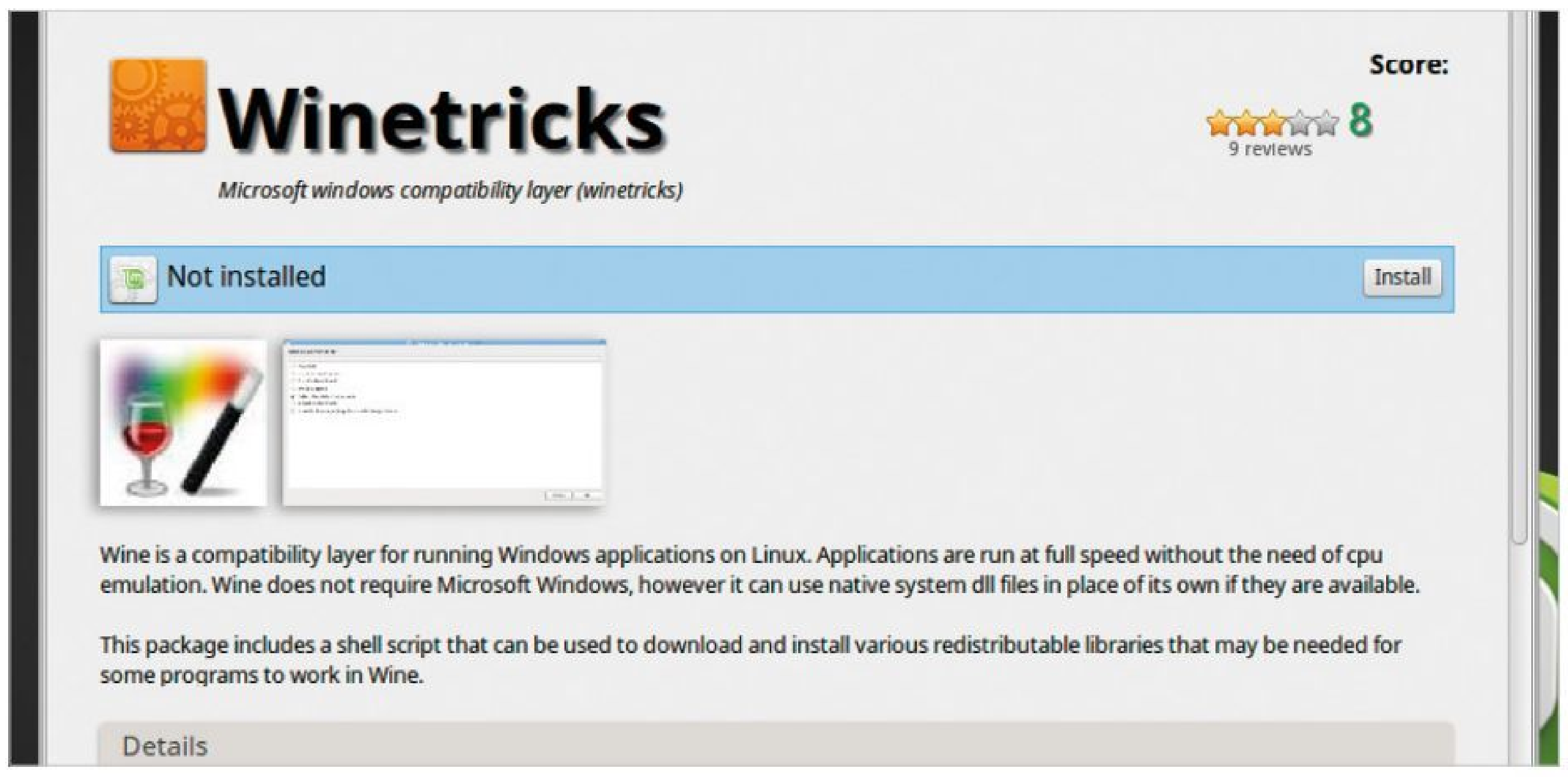

File Edit View Go Bookmarks Help
Home
Reload
Sidebar
Main Toolbar
Menubar
Statusbar
Extra Pane
Toggle Location Entry
Reset View to Defaults
Show Hidden Files
Arrange Items
Organize by Name
Zoom In
Zoom Out
Normal Size
Icons
List
Compact
.cache
.cinnamon
.config
.dbus
.geophar
.gimp 2.8
.gnupg
.hplip
.linuxmint
.local
.mozilla
.nano
.pki
.stella
.themes
.thumbnails
.vnc
.wine
mapfile
.bash_history
.bashrc
.dmrc
.dmrc.ZKU4WY
.gksu.lock
.ICEauthority
.profile
.sudo_as_admin_successful
.swp
.vboxclient-clipboard.pid

STEP 4 Using Nemo, navigate to `.wine/drive_c/Program Files (x86)/Windows NT/Accessories`. The wordpad.exe file should be there, all you need to do double-click it to open it through Wine. If it doesn't work, right-click the file and choose 'Open With Wine Windows Program Loader', from the menu.


Document - Wine Wordpad
File Edit View Insert Format Help
Times New Roman
Windows Wordpad!
Accessories
File Edit View Go Bookmarks Help
david
.wine
drive_c
Program Files (x86)
Windows NT
Accessories
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Network
Network
Open With Wine Windows Program Loader
Open With
Send by Email
Cut
Copy
Rename...
Move to the Rubbish Bin
Delete
Extract Here
Compress...
Properties

selection = 16..16, line count=1

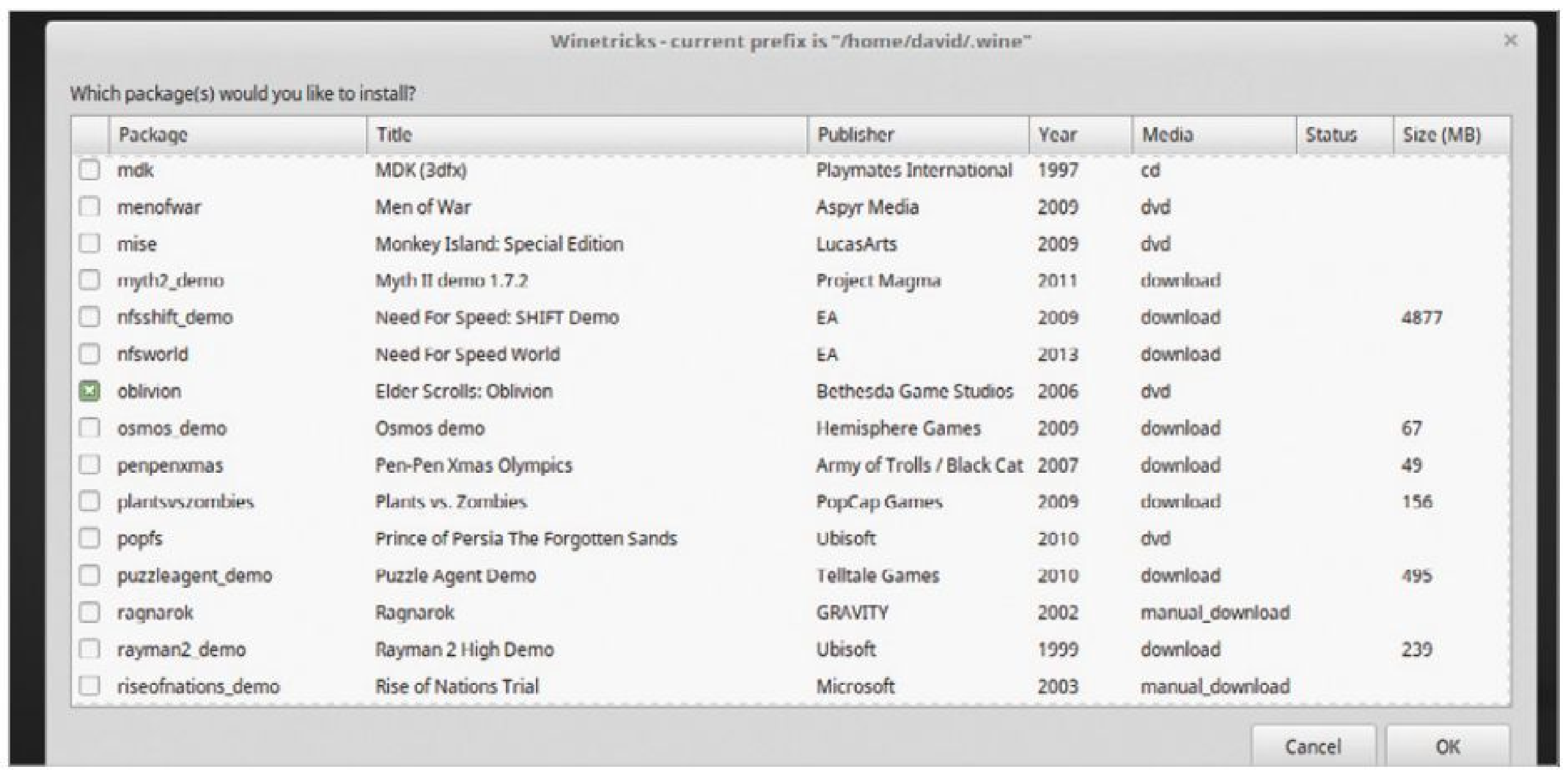
STEP 5 All being well, you should be able to successfully use Wordpad within Mint. Another handy Wine tool to have installed is Winetricks. Open the Mint Software Manager via the Menu, enter your password and search for Winetricks, click on the Install button.


Winetricks
Score:
8
9 reviews
Microsoft windows compatibility layer (winetricks)
Not installed
Install
Details

Wine is a compatibility layer for running Windows applications on Linux. Applications are run at full speed without the need of cpu emulation. Wine does not require Microsoft Windows, however it can use native system dll files in place of its own if they are available.

This package includes a shell script that can be used to download and install various redistributable libraries that may be needed for some programs to work in Wine.

STEP 6 Winetricks should now be in a new Menu section. Winetricks is a script to help install Windows apps and games. If you have a game, such as Elder Scrolls: Oblivion, click Install a Game and choose the title from the list. Providing you have the disc or download handy, point Winetricks to it and it does the rest for you.


Winetricks - current prefix is "/home/david/.wine"
Cancel
OK

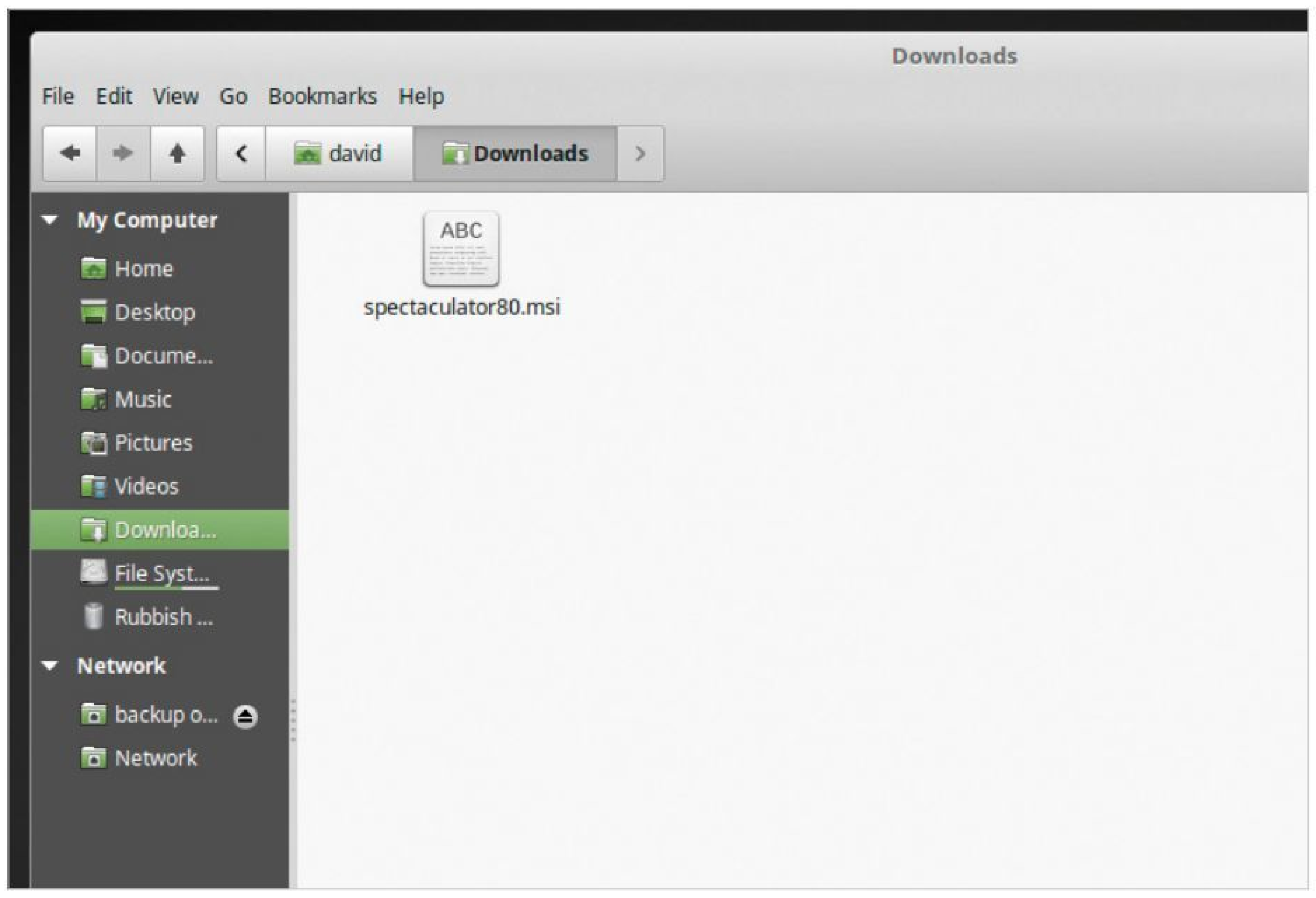
Which package(s) would you like to install?

	Package	Title	Publisher	Year	Media	Status	Size (MB)
☐	mdk	MDK (3dfx)	Playmates International	1997	cd		
☐	menofwar	Men of War	Aspyr Media	2009	dvd		
☐	mise	Monkey Island: Special Edition	LucasArts	2009	dvd		
☐	myth2_demo	Myth II demo 1.7.2	Project Magma	2011	download		
☐	nfsshift_demo	Need For Speed: SHIFT Demo	EA	2009	download		4877
☐	nfsworld	Need For Speed World	EA	2013	download		
☒	oblivion	Elder Scrolls: Oblivion	Bethesda Game Studios	2006	dvd		
☐	osmos_demo	Osmos demo	Hemisphere Games	2009	download		67
☐	penpenxmas	Pen-Pen Xmas Olympics	Army of Trolls / Black Cat	2007	download		49
☐	plantsvszombies	Plants vs. Zombies	PopCap Games	2009	download		156
☐	popfs	Prince of Persia The Forgotten Sands	Ubisoft	2010	dvd		
☐	puzzleagent_demo	Puzzle Agent Demo	Telltale Games	2010	download		495
☐	ragnarok	Ragnarok	GRAVITY	2002	manual_download		
☐	rayman2_demo	Rayman 2 High Demo	Ubisoft	1999	download		239
☐	riseofnations_demo	Rise of Nations Trial	Microsoft	2003	manual_download		

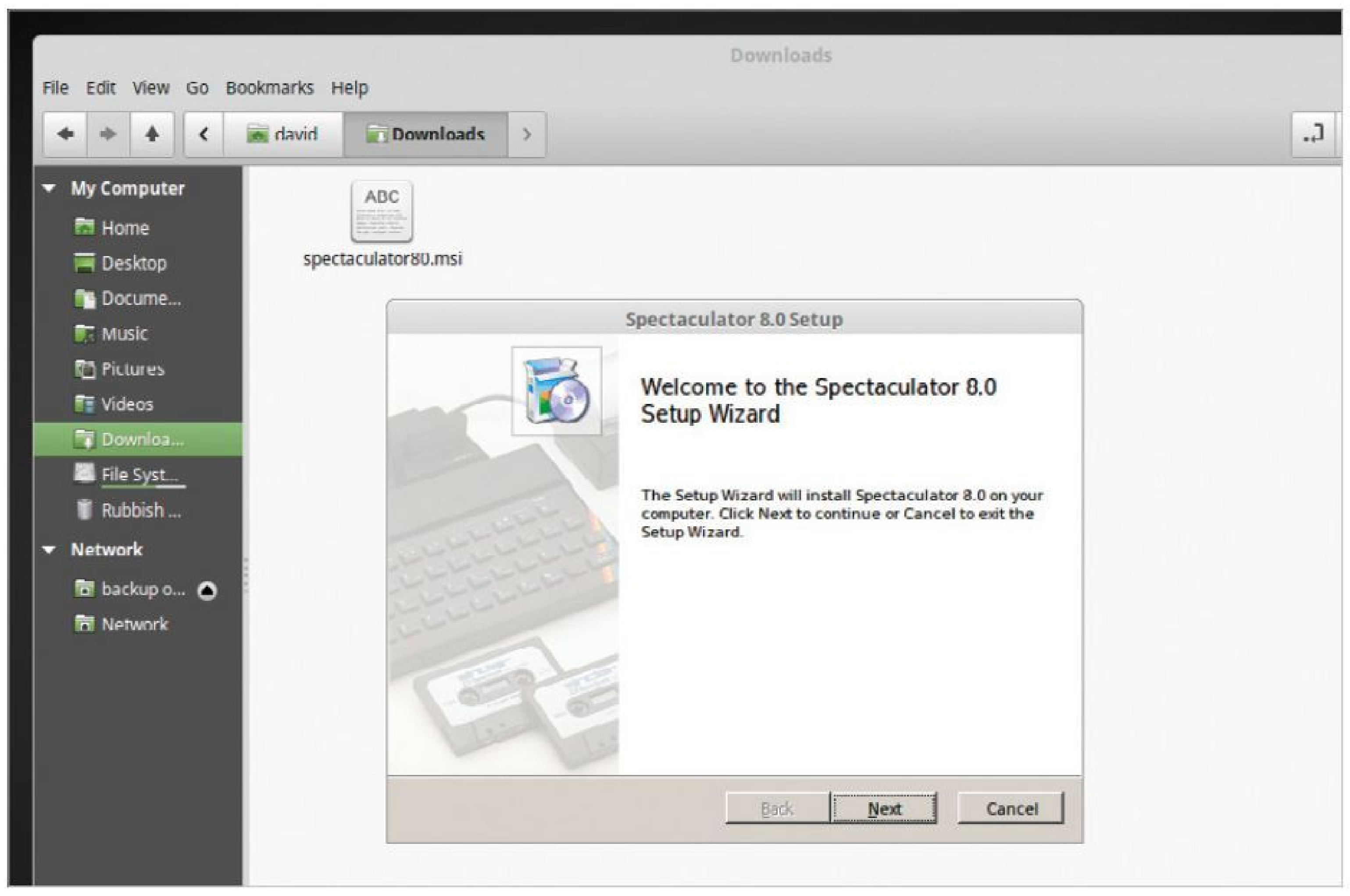
INSTALLING FROM A WINDOWS EXECUTABLE

At some point you'll probably need to install a Windows app from its executable, the .EXE or .MSI file. Here's how it's done.

STEP 1 For this example you're going to install a Windows app called Spectaculator, a ZX Spectrum emulator that runs in Windows XP and newer. You already have the MSI file to set it up, copied to the ~/Downloads folder in the Home area.


Downloads
File Edit View Go Bookmarks Help
david
Downloads
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Network
backup o...
Network
ABC
spectaculator80.msi

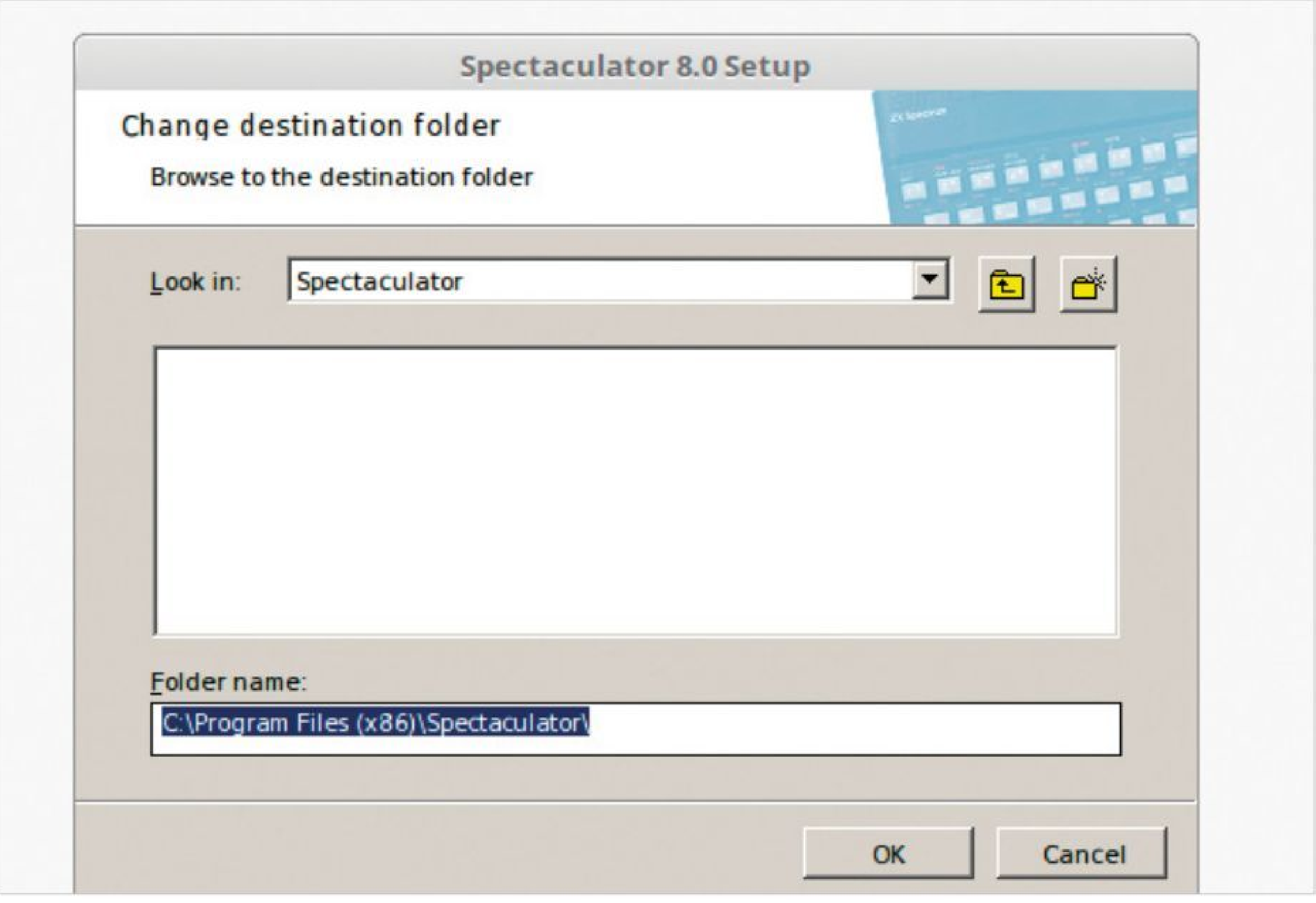
STEP 2 As you did with running the Wordpad.exe file, right-click the MSI file and choose 'Open With Wine Windows Program Loader'. The app's installer should open as it would if it was running on a Windows PC.


Downloads
File Edit View Go Bookmarks Help
david
Downloads
spectaculator80.msi
Spectaculator 8.0 Setup
Back
Next
Cancel

Welcome to the Spectaculator 8.0 Setup Wizard

The Setup Wizard will install Spectaculator 8.0 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.

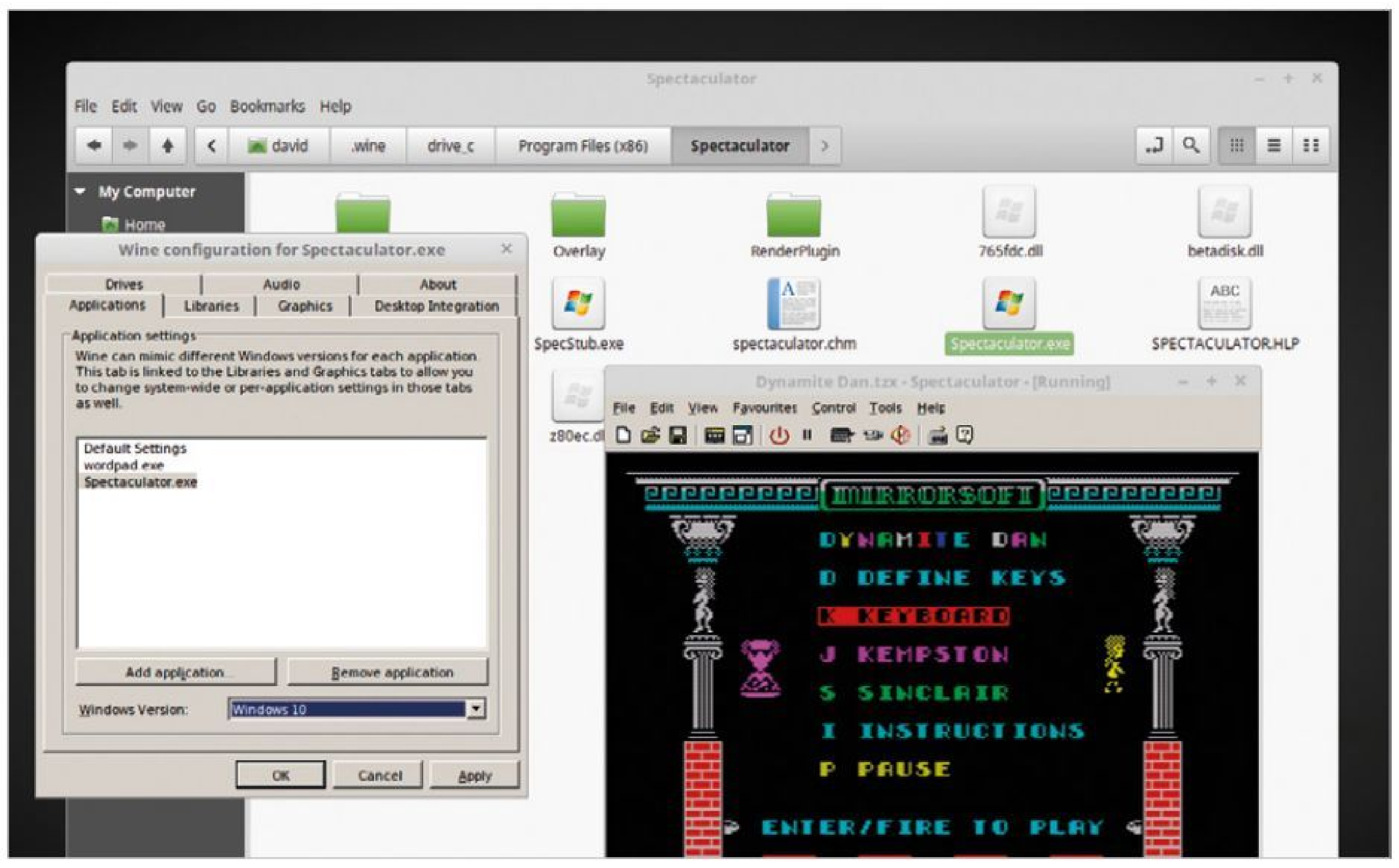
STEP 3 Run through the installation as you normally would. When you get to the installation destination part of the install, click to customise it and make sure it's configured to the fake C: drive correctly.


Spectaculator 8.0 Setup
Change destination folder
Browse to the destination folder
OK
Cancel

Look in: Spectaculator

Folder name: C:\Program Files (x86)\Spectaculator\

STEP 4 If you now relaunch winecfg, use Application Settings > Add Application, to locate the newly installed app and add it to the Application Settings list. Highlight it and choose the Windows Version. Click OK, locate the app from Files in the fake C: drive and run it as you did with the Wordpad example.


Spectaculator
File Edit View Go Bookmarks Help
david
.wine
drive_c
Program Files (x86)
Spectaculator
My Computer
Home
Overlay
RenderPlugin
765fdc.dll
betadisk.dll
SpecStub.exe
spectaculator.chm
Spectaculator.exe
SPECTACULATOR.HLP
z80ec.dll
Wine configuration for Spectaculator.exe
Drives
Audio
About
Applications
Libraries
Graphics
Desktop Integration
Add application...
Remove application
OK
Cancel
Apply
Dynamite Dan.tzx - Spectaculator - [Running]
File Edit View Favourites Control Tools Help
MIRRORSOFT
DYNAMITE DAN
D DEFINE KEYS
K KEYBOARD
J KEMPSTON
S SINCLAIR
I INSTRUCTIONS
P PAUSE
ENTER/FIRE TO PLAY

Application settings

Wine can mimic different Windows versions for each application. This tab is linked to the Libraries and Graphics tabs to allow you to change system-wide or per-application settings in those tabs as well.

Default Settings
wordpad.exe
Spectaculator.exe

Windows Version: Windows 10

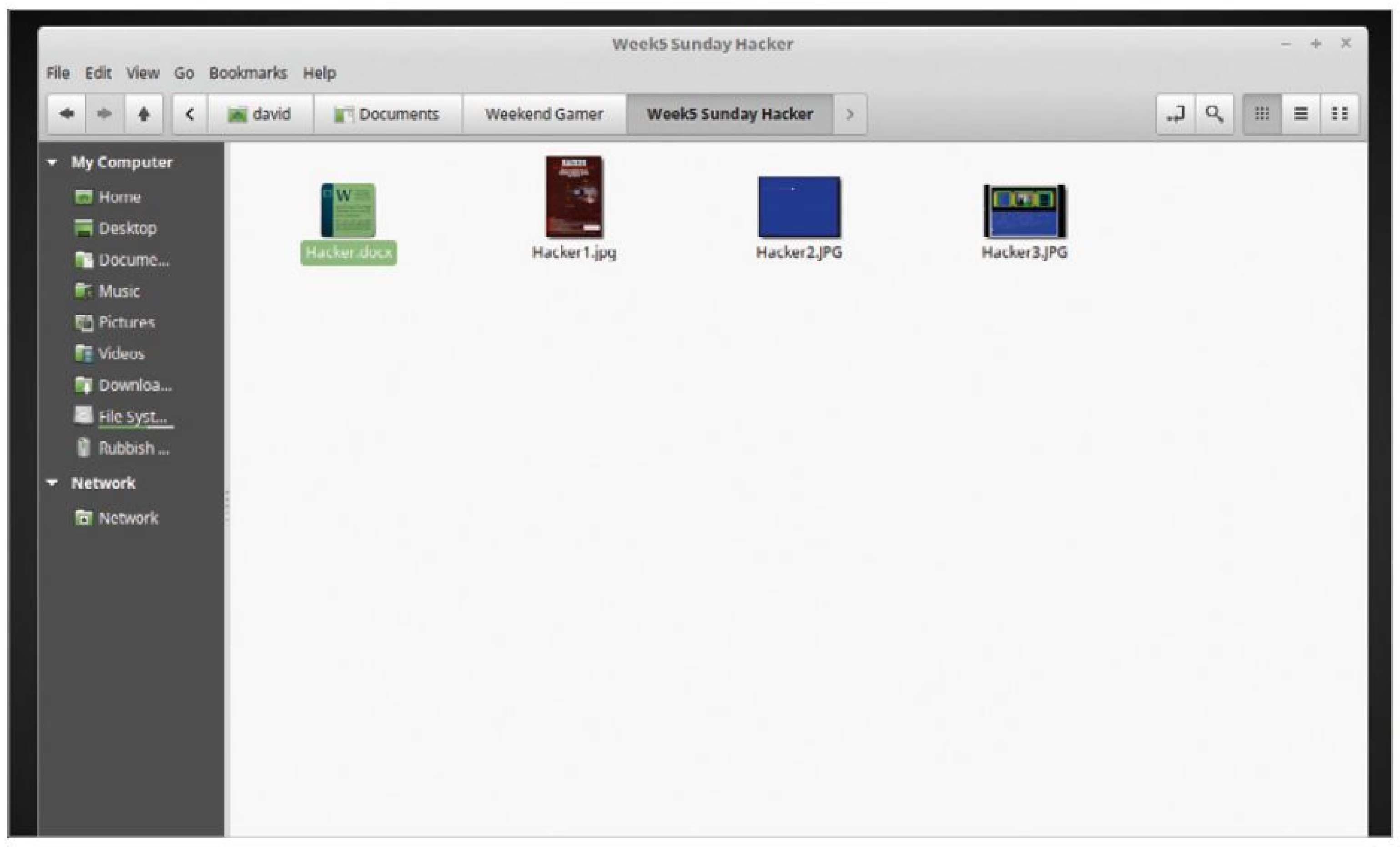
How to Create a PDF in Linux Mint

Since being made the open standard online document in 2008, Adobe's PDF has been a blessing and a headache to those who use it. The early days of PDF creation required expensive software or apps that weren't very good. These days the process is much easier.

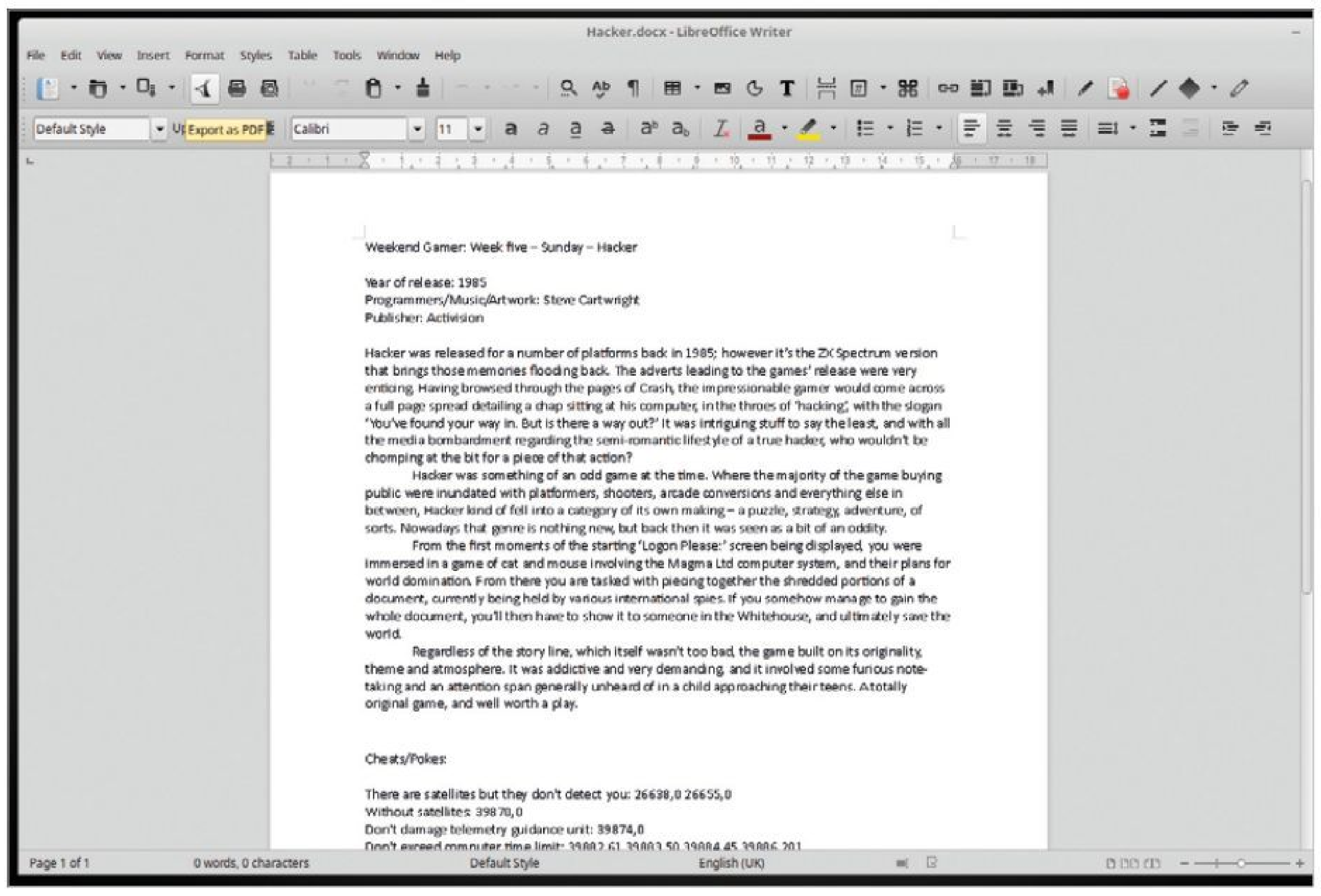
EASY PDFs

There are numerous options available with the preinstalled Mint programs when it comes to creating a PDF, either from a document or an image.

STEP 1 Let's start with creating a PDF from a document. The example we have to work on was created with a recent version of MS Word and as such is a .docx document. What we want to do is convert that to a PDF. First, double-click the document to open it in LibreOffice Writer.


Week5 Sunday Hacker
File Edit View Go Bookmarks Help
david
Documents
Weekend Gamer
Week5 Sunday Hacker
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Network
Network
Hacker.docx
Hacker1.jpg
Hacker2.JPG
Hacker3.JPG

STEP 2 With the document open make sure the formatting is correct, especially if you're opening a document created from another word processor. LibreOffice Writer has a handy shortcut icon in the top toolbar for exporting a document as a PDF: it's between the Save and Print icons.


Hacker.docx - LibreOffice Writer
File Edit View Insert Format Styles Table Tools Window Help
Default Style
Export as PDF
Calibri
11
Page 1 of 1
0 words, 0 characters
Default Style
English (UK)

Weekend Gamer: Week five – Sunday – Hacker

Year of release: 1985
Programmers/Music/Artwork: Steve Cartwright
Publisher: Activision

Hacker was released for a number of platforms back in 1985; however it's the ZX Spectrum version that brings those memories flooding back. The adverts leading to the games' release were very enticing. Having browsed through the pages of Crash, the impressionable gamer would come across a full page spread detailing a chap sitting at his computer, in the throes of 'hacking', with the slogan 'You've found your way in. But is there a way out?' It was intriguing stuff to say the least, and with all the media bombardment regarding the semi-romantic lifestyle of a true hacker, who wouldn't be chomping at the bit for a piece of that action?

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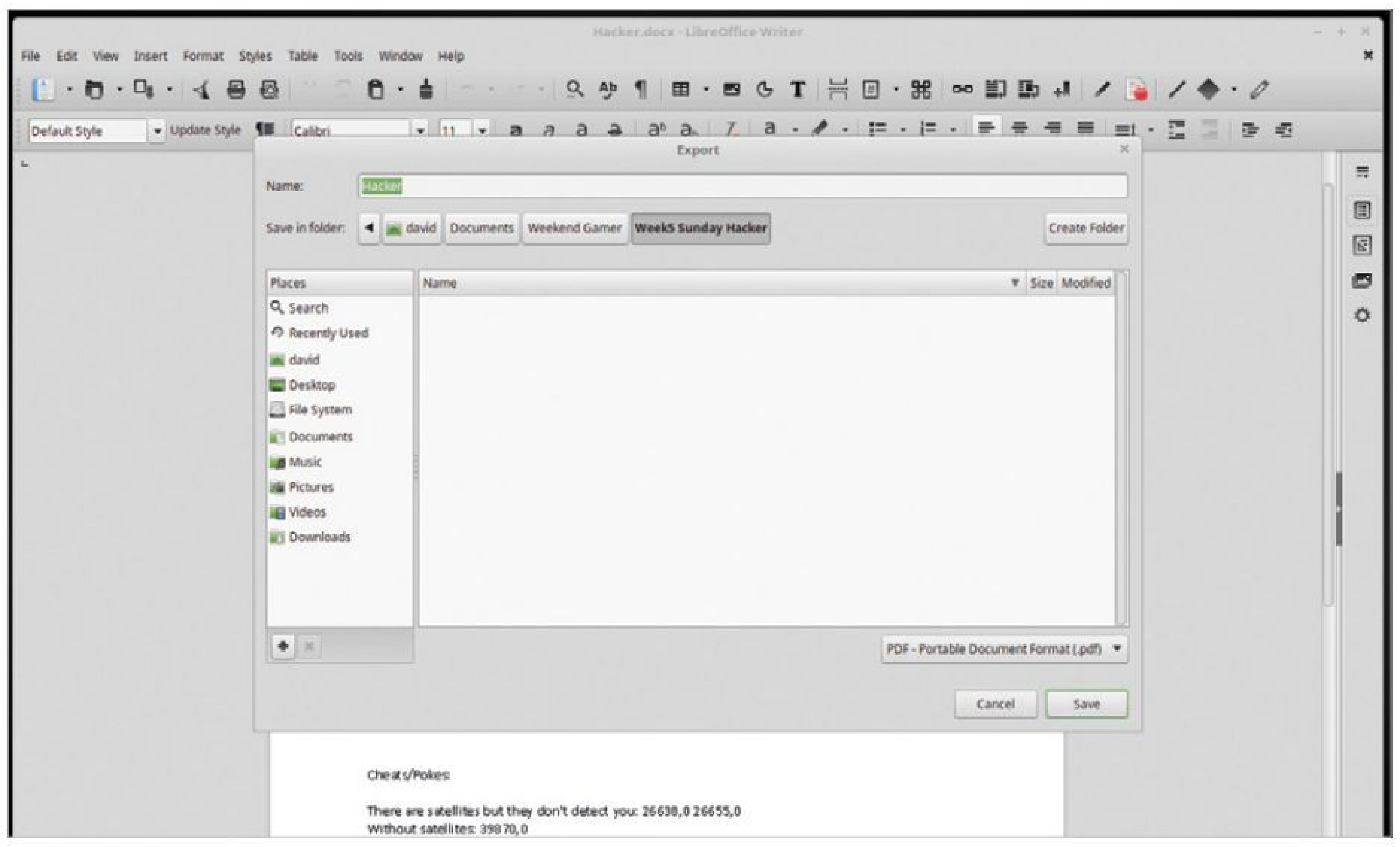
Regardless of the story line, which itself wasn't too bad, the game built on its originality, theme and atmosphere. It was addictive and very demanding, and it involved some furious note-taking and an attention span generally unheard of in a child approaching their teens. A totally original game, and well worth a play.

Cheats/Pokes:

There are satellites but they don't detect you: 26638,0 26655,0
Without satellites: 39870,0
Don't damage telemetry guidance unit: 39874,0

STEP 3 Click the Export to PDF icon. The export window is identical to that of a standard save document, except for the PDF option in the file format type box in the bottom corner. All you need to do is check the name of the file to be exported, and its location, is correct.

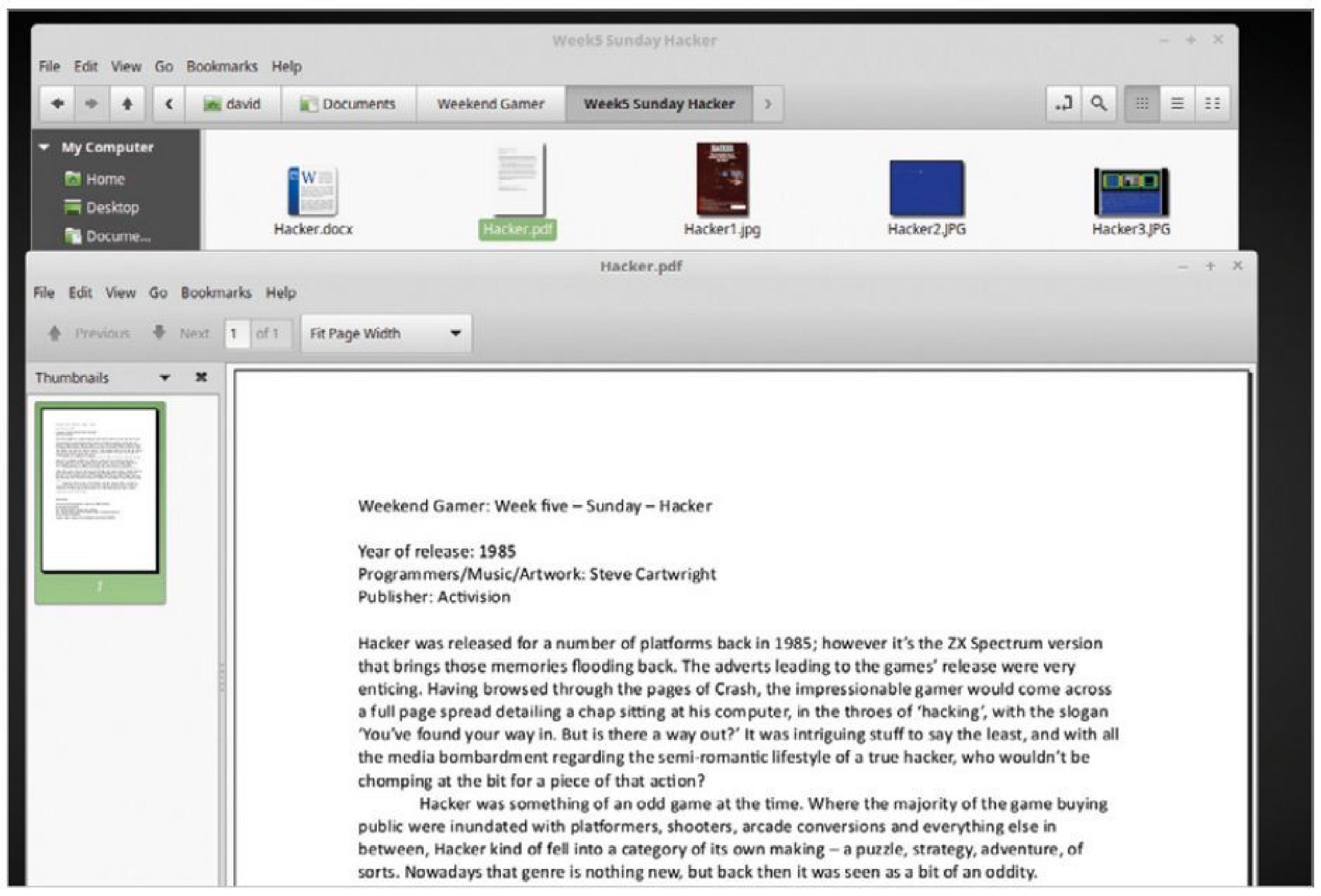

Hacker.docx - LibreOffice Writer
File Edit View Insert Format Styles Table Tools Window Help
Default Style
Update Style
Calibri
11
Export
Create Folder
Places
Search
Recently Used
david
Desktop
File System
Documents
Music
Pictures
Videos
Downloads
Name
Size
Modified
Cancel
Save

Name: Hacker
Save in folder: david / Documents / Weekend Gamer / Week5 Sunday Hacker
PDF - Portable Document Format (.pdf)

Cheats/Pokes:

There are satellites but they don't detect you: 26638,0 26655,0
Without satellites: 39870,0

STEP 4 Click on the Save button when you're ready and the document will be exported and saved with the chosen name in the chosen location. You can then check the export was successful by opening the document with Mint's Xreader PDF reader software.


Week5 Sunday Hacker
File Edit View Go Bookmarks Help
david
Documents
Weekend Gamer
Week5 Sunday Hacker
My Computer
Home
Desktop
Docume...
Hacker.docx
Hacker.pdf
Hacker1.jpg
Hacker2.JPG
Hacker3.JPG
Hacker.pdf
File Edit View Go Bookmarks Help
Previous
Next
1
of 1
Fit Page Width
Thumbnails

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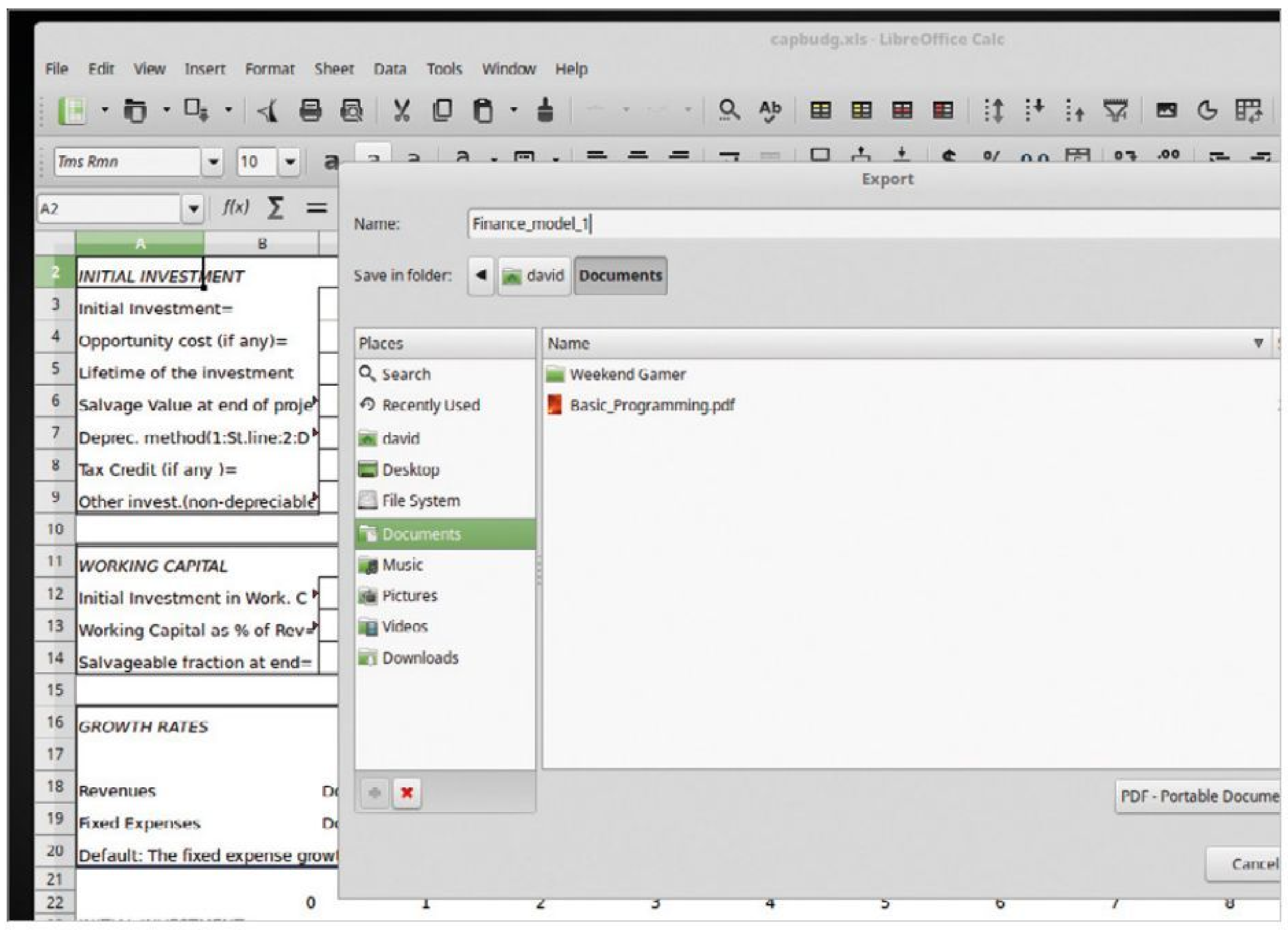
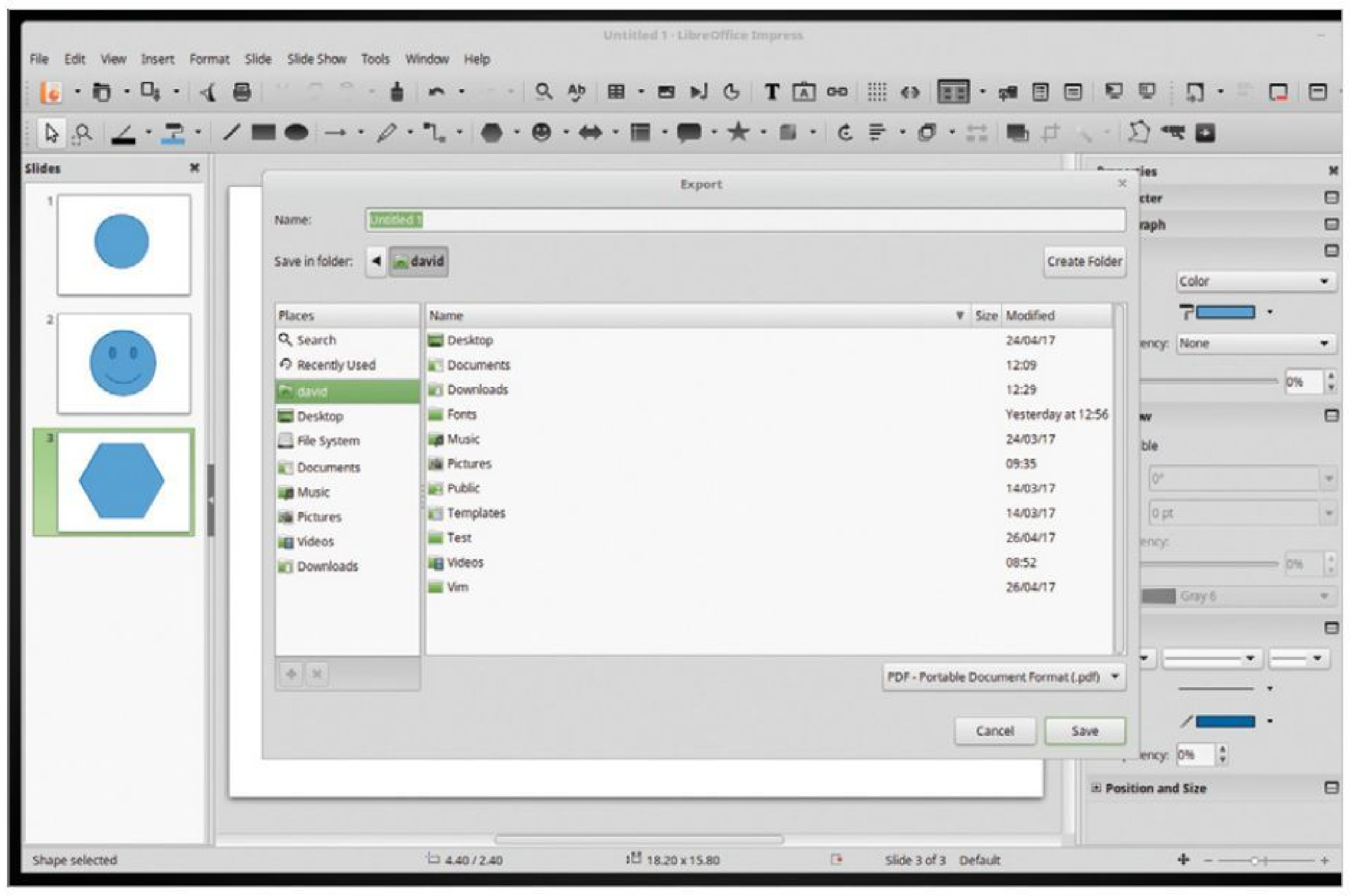
STEP 5 LibreOffice Writer isn't the only productivity app that can handle exporting to a PDF. Calc has the same functionality, with the Export to PDF in the same place in the top toolbar as Writer.


capbudg.xls - LibreOffice Calc
File Edit View Insert Format Sheet Data Tools Window Help
Export
INITIAL INVESTMENT
Initial investment=
Opportunity cost (if any)=
Lifetime of the investment
Salvage Value at end of proje
Deprec. method(1:St.line;2:D
Tax Credit (if any)=
Other invest.(non-depreciable
WORKING CAPITAL
Initial Investment in Work. C
Working Capital as % of Rev
Salvageable fraction at end=
GROWTH RATES
Revenues
Fixed Expenses
Default: The fixed expense grow
Places
Search
Recently Used
david
Desktop
File System
Documents
Music
Pictures
Videos
Downloads
Name
Weekend Gamer
Basic_Programming.pdf
PDF - Portable Docume
Cancel

Name: Finance_model_1

Save in folder: david Documents

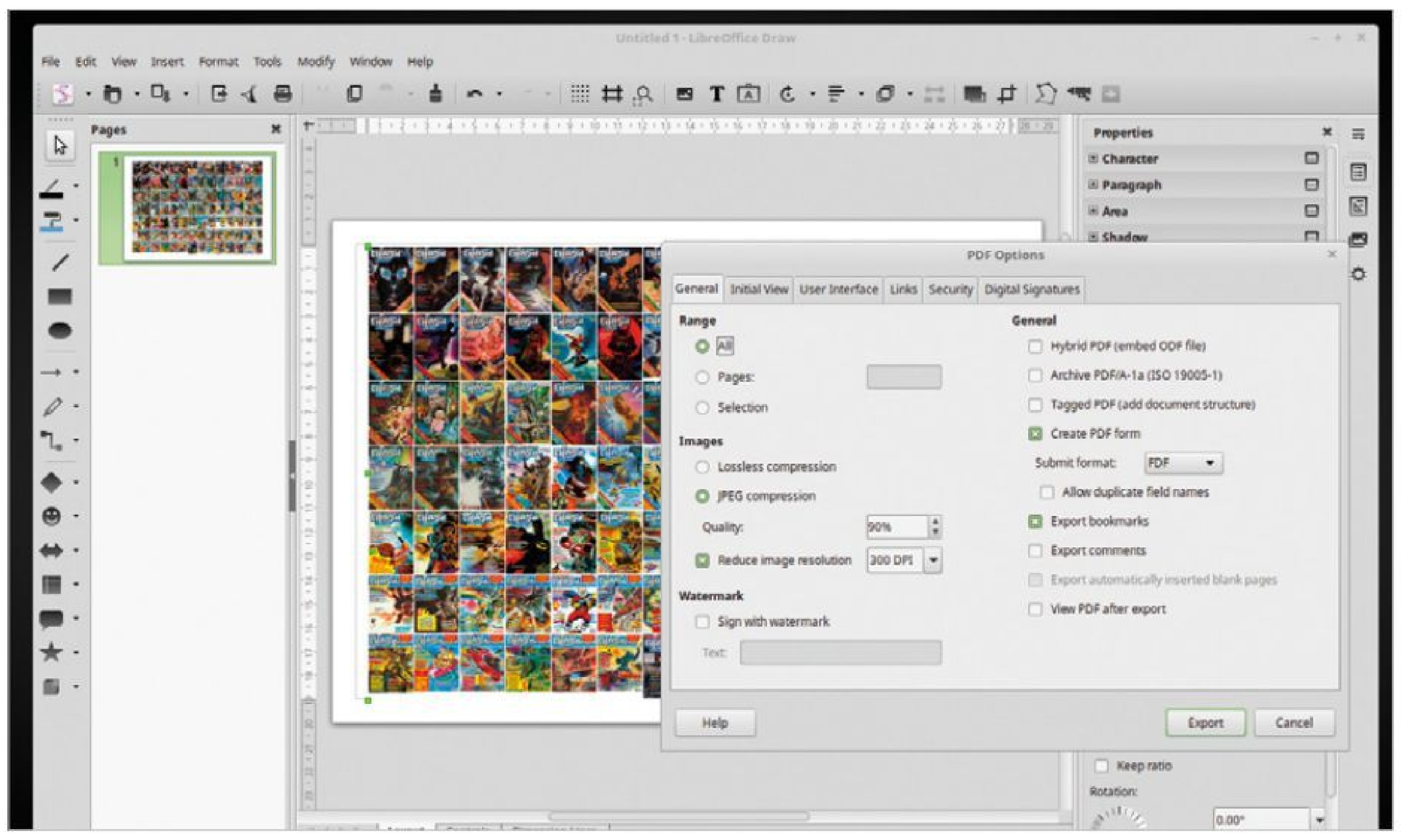
STEP 6 The same functionality can also be found in LibreOffice Impress, using the same icon located in the top toolbar. In short, all the LibreOffice apps will allow you to Export the created or opened document as a PDF.


Untitled 1 - LibreOffice Impress
Export
Create Folder
Places
Search
Recently Used
david
Desktop
File System
Documents
Music
Pictures
Videos
Downloads
Name
Desktop
Documents
Downloads
Fonts
Music
Pictures
Public
Templates
Text
Videos
Vim
PDF - Portable Document Format (.pdf)
Cancel
Save

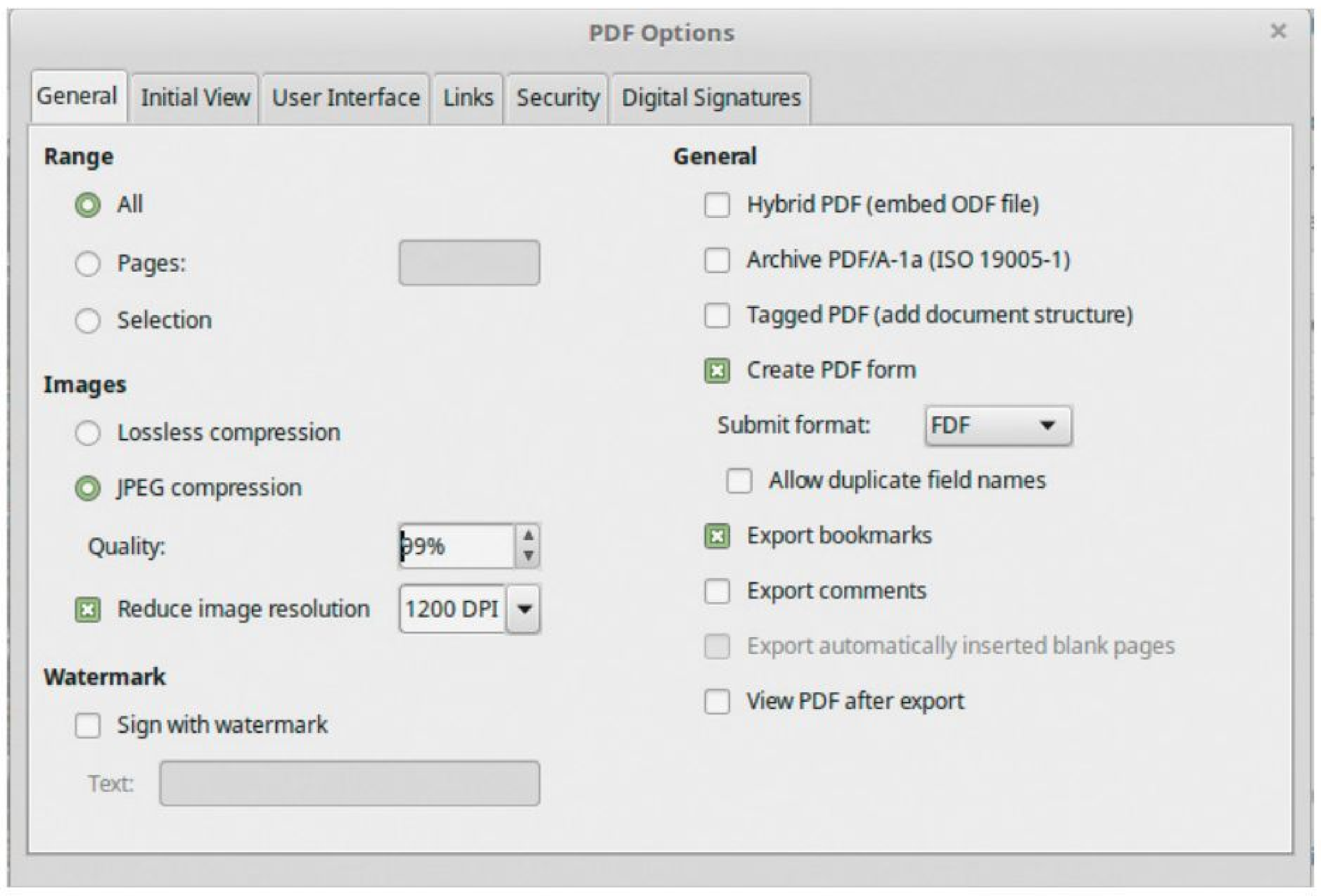
Name: Untitled 1

Save in folder: david

STEP 7 While the Export to PDF option is a quick, one-step solution that satisfies most users, you can opt for a higher degree of customisation for your PDF. By clicking, in any of the LibreOffice apps, File > Export As PDF, a PDF Options window will be displayed.


Untitled 1 - LibreOffice Draw
PDF Options
General
Initial View
User Interface
Links
Security
Digital Signatures
Help
Export
Cancel

STEP 8 The PDF Options will allow you to fine tune the PDF conversion process. Adding digital signatures, setting security options, and the overall quality of the images within the document. If you feel your PDF is lacking something from the simple Export to PDF option, then look to here.


PDF Options
General
Initial View
User Interface
Links
Security
Digital Signatures

Range

● All

○ Pages:

○ Selection

Images

○ Lossless compression

● JPEG compression

Quality: 99%

☒ Reduce image resolution 1200 DPI

Watermark

☐ Sign with watermark

Text:

General

☐ Hybrid PDF (embed ODF file)

☐ Archive PDF/A-1a (ISO 19005-1)

☐ Tagged PDF (add document structure)

☒ Create PDF form

Submit format: FDF

☐ Allow duplicate field names

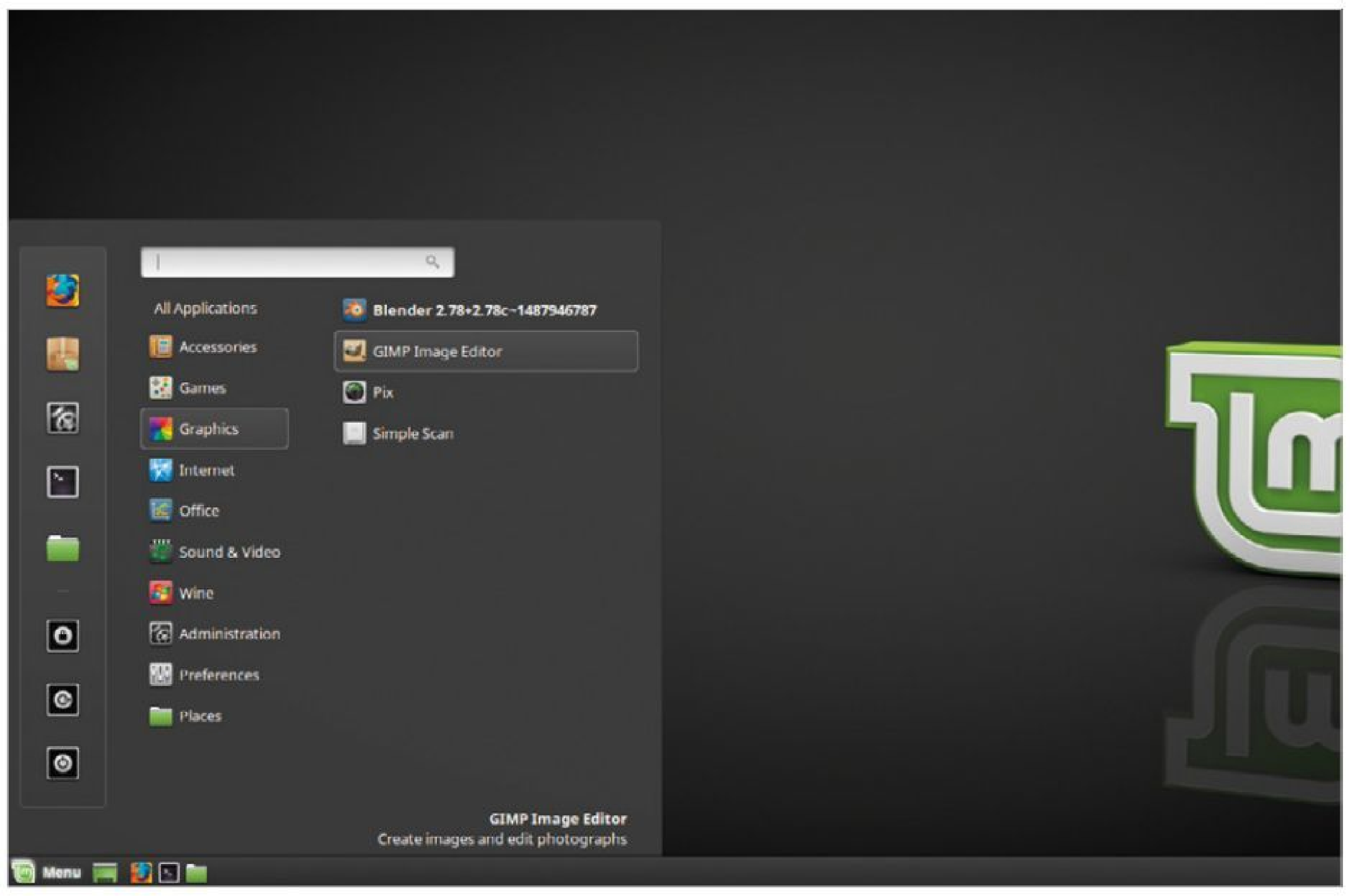
☒ Export bookmarks

☐ Export comments

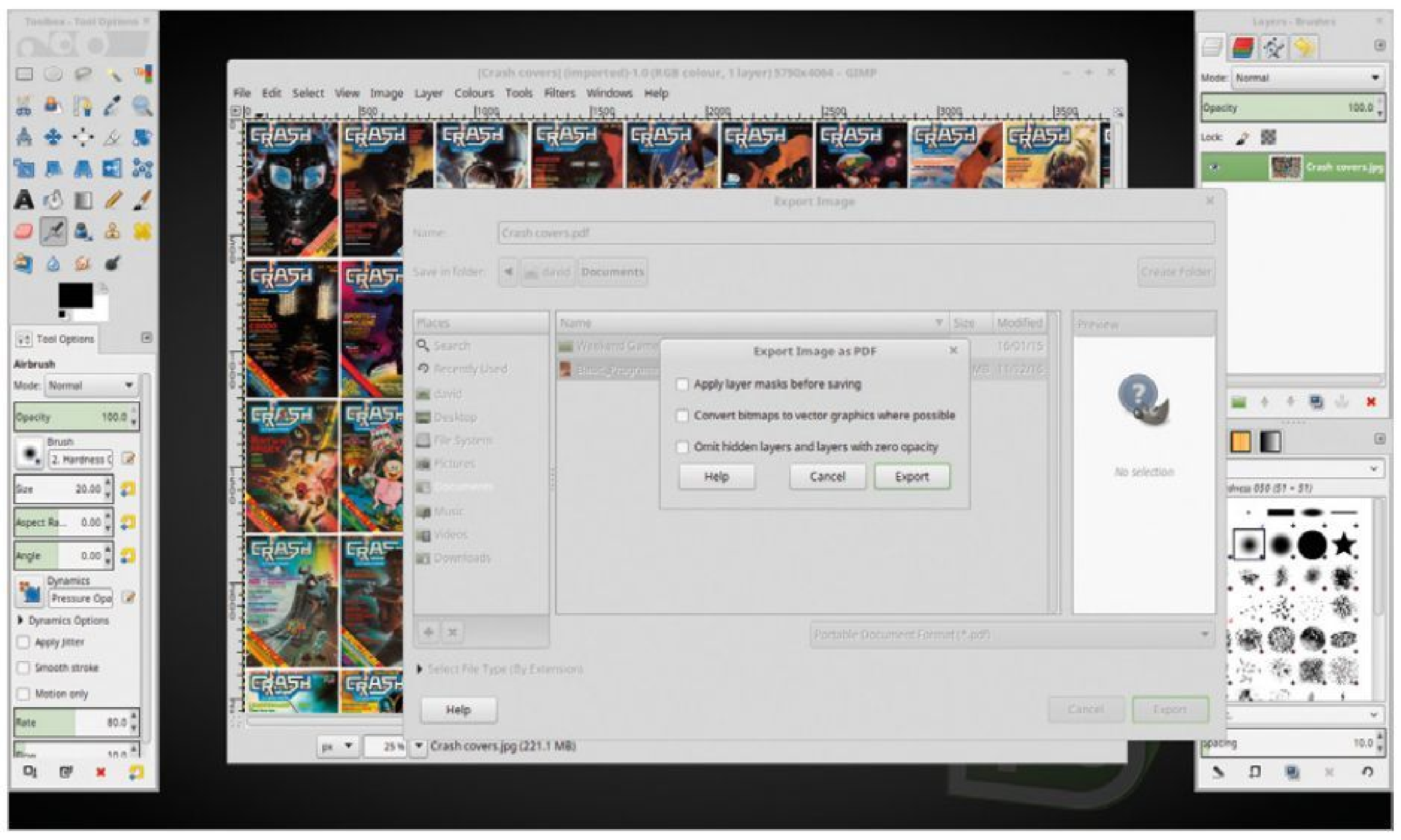
☐ Export automatically inserted blank pages

☐ View PDF after export

STEP 9 Most image editors available will save a picture file as a PDF but we feel GIMP has some of the best options available to help you create or convert, the perfect PDF. If you haven't already looked at GIMP, you'll find it from Menu > Graphics.


All Applications
Accessories
Games
Graphics
Internet
Office
Sound & Video
Wine
Administration
Preferences
Places
Blender 2.78+2.78c~1487946787
GIMP Image Editor
Pix
Simple Scan
GIMP Image Editor
Create images and edit photographs
Menu

STEP 10 Open GIMP and use File > Open to display the image you want to export as a PDF. With the image open, choose File > Export As..., opting for PDF in the possible file formats in the bottom right-hand corner of the Export Image window. Change the image name to end in .PDF and click Export for further options.


Export Image
Export Image as PDF
Apply layer masks before saving
Convert bitmaps to vector graphics where possible
Omit hidden layers and layers with zero opacity
Help
Cancel
Export

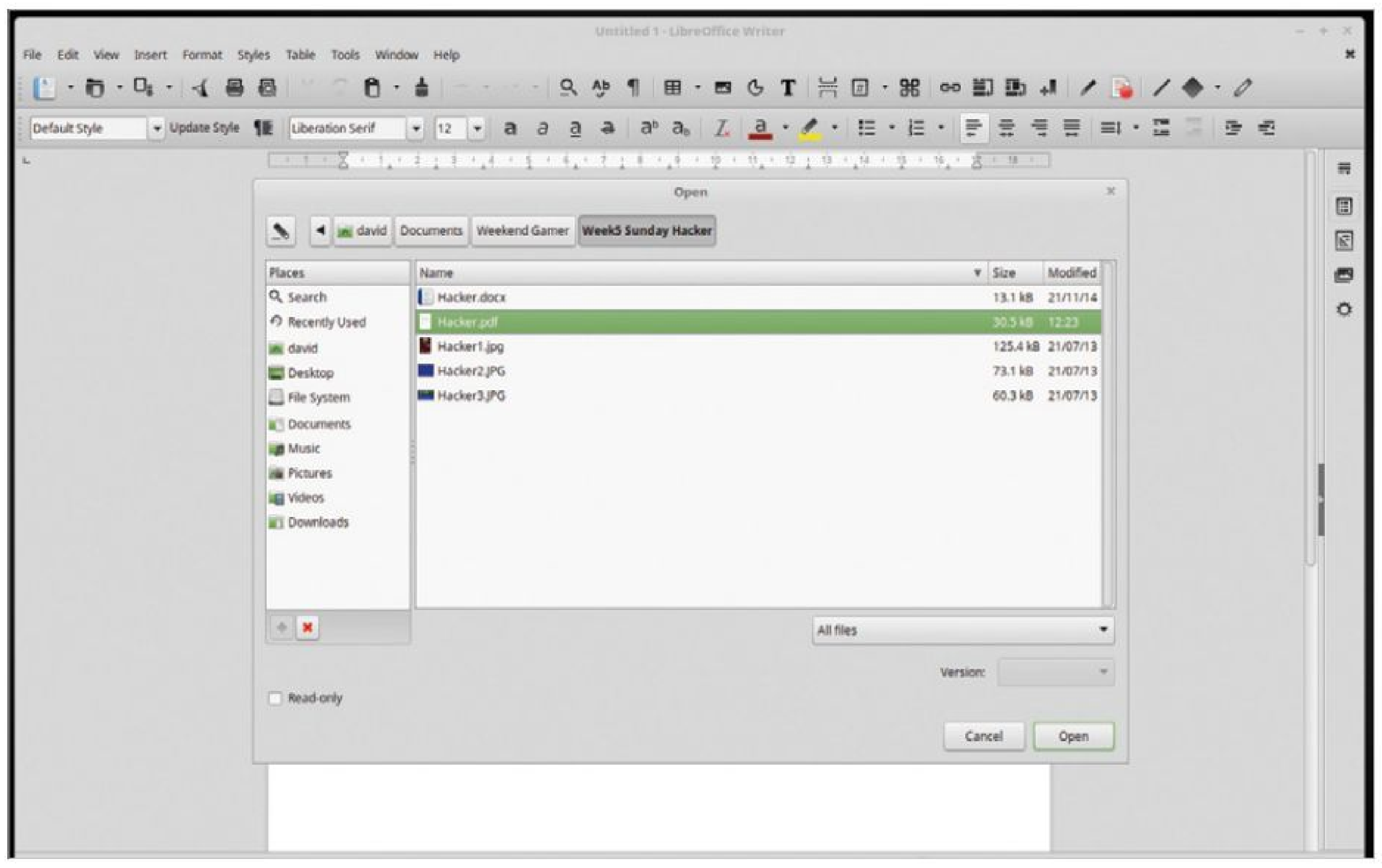
How to Edit a PDF in Linux Mint

Creating a PDF is simple enough but editing a PDF has always proved tricky without the right software. Apps that allow you to edit PDFs can be extraordinarily expensive; thankfully though Linux Mint can help you out.

PDF EDITS

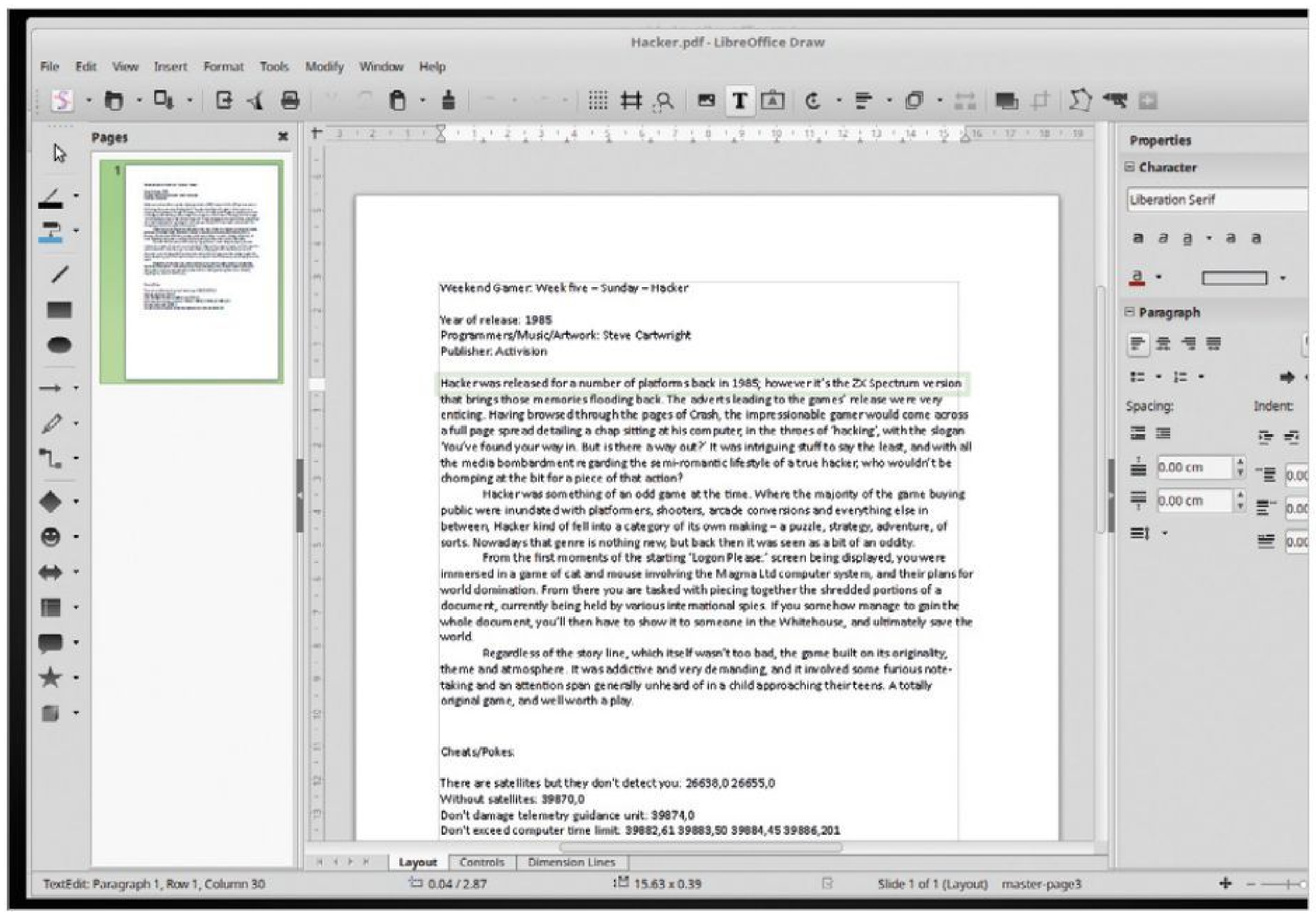
You can edit a PDF in Mint without too much hassle. However, it all depends on how the PDF was created in the first place. Some require a little more work than others.

STEP 1 The first choice for editing a PDF lies with LibreOffice Writer. Take, for example, the PDF we created in the previous section. Simply open Writer, click on the Open icon, or use File > Open and point to the previously created PDF.



Untitled 1 - LibreOffice Writer
Open
david
Documents
Weekend Gamer
Week5 Sunday Hacker
Places
Search
Recently Used
Desktop
File System
Music
Pictures
Videos
Downloads
Hacker.docx
Hacker.pdf
Hacker1.jpg
Hacker2.JPG
Hacker3.JPG
All files
Read-only
Cancel
Open

STEP 2 Depending on the size of the PDF in question, Writer can take a little while to convert and open the PDF for editing. With the previous PDF open, one that was created from within Writer, you should now be able to double-click a paragraph and edit the text.



Hacker.pdf - LibreOffice Draw
Pages
Properties
Character
Liberation Serif
Paragraph
Layout
Controls
Dimension Lines
TextEdit: Paragraph 1, Row 1, Column 30
0.04 / 2.87
15.63 x 0.39
Slide 1 of 1 (Layout)
master-page3

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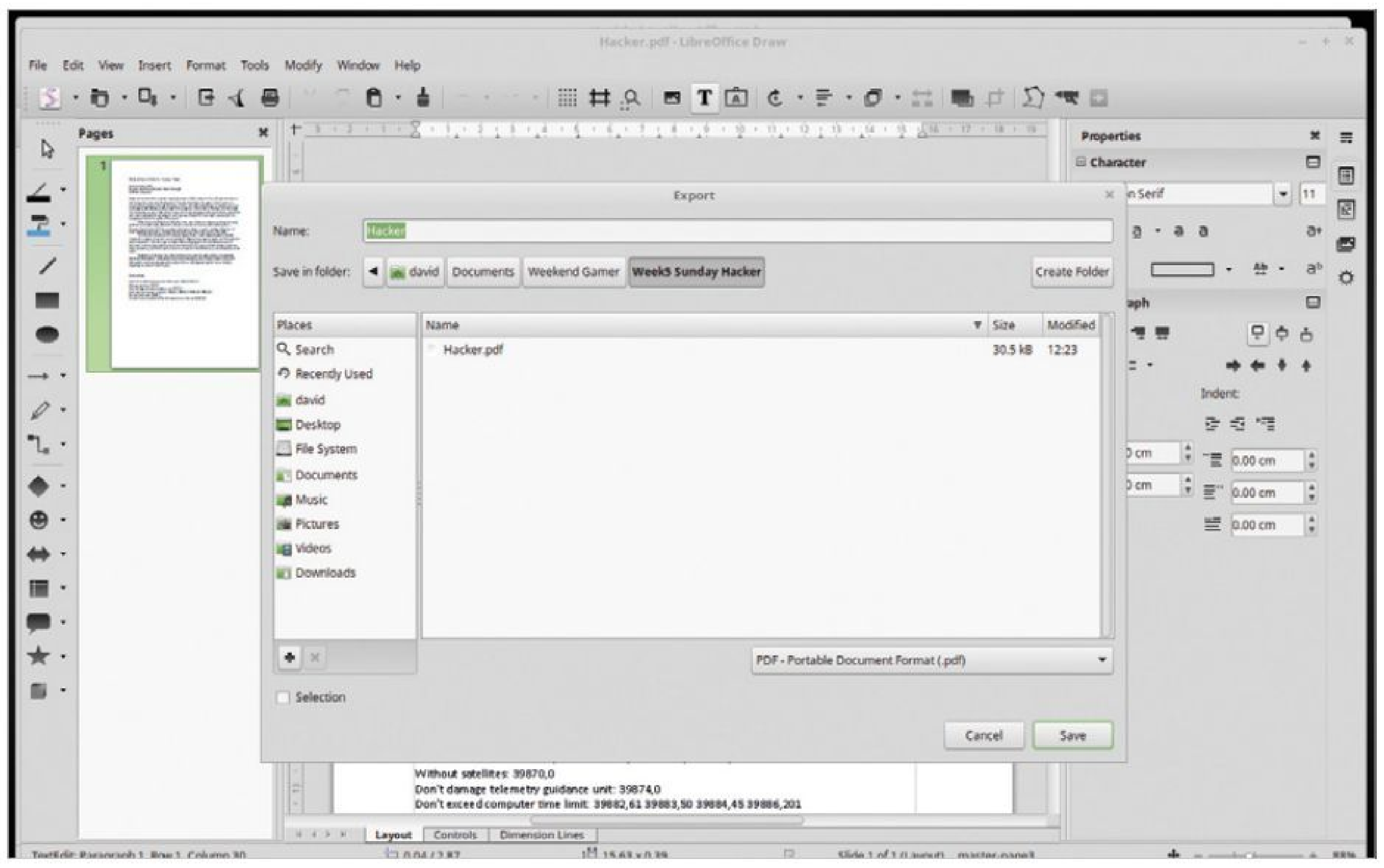
Cheats/Pokes:

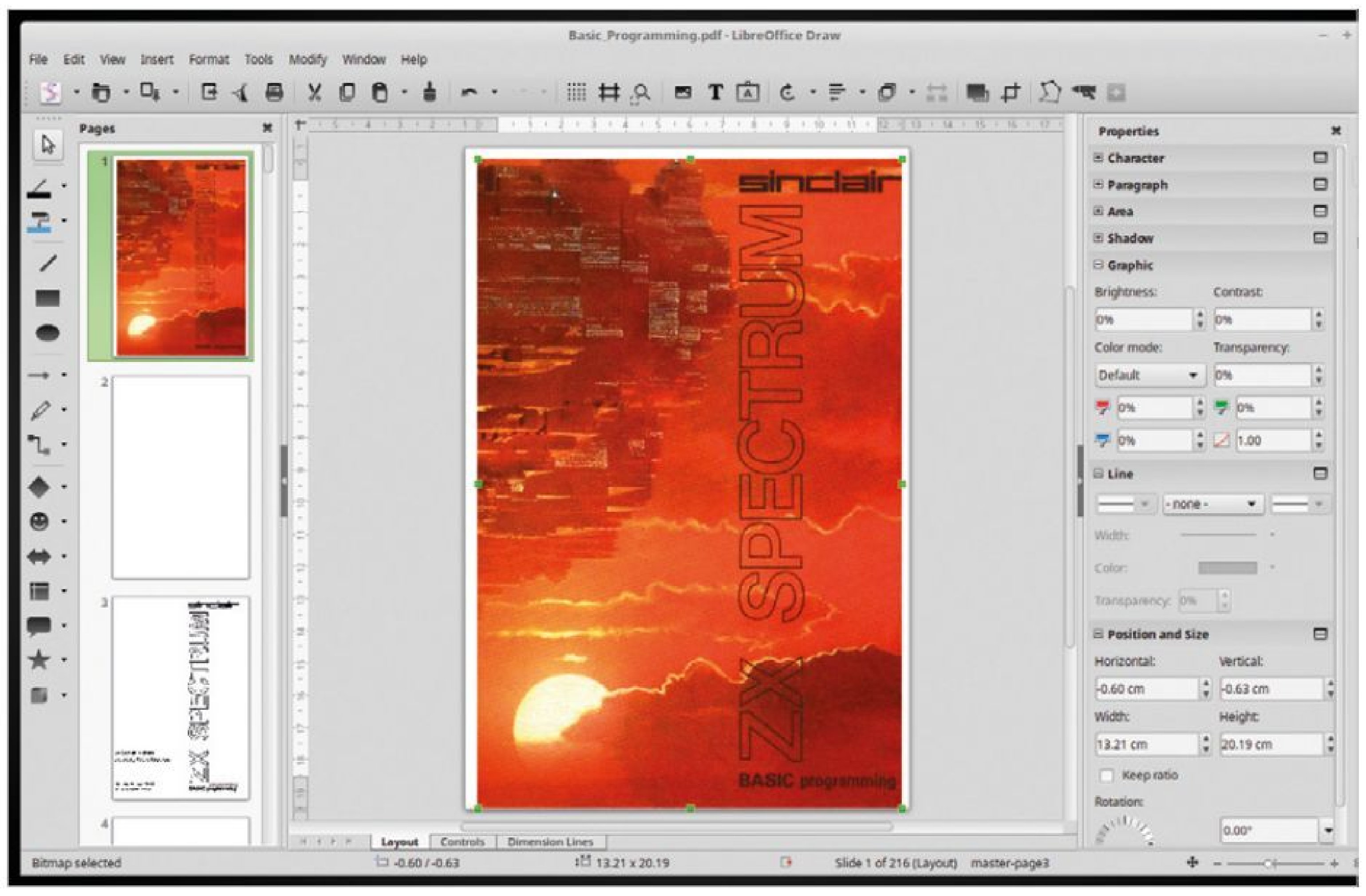
There are satellites but they don't detect you: 26638,0 26655,0
Without satellites: 39870,0
Don't damage telemetry guidance unit: 39874,0
Don't exceed computer time limit: 39882,61 39883,50 39884,45 39886,201

STEP 3 When you're done with the editing, click on the Export as PDF icon again in the top toolbar, or for more options use File > Export as PDF. Clicking save will simply save the document as a LibreOffice created file.



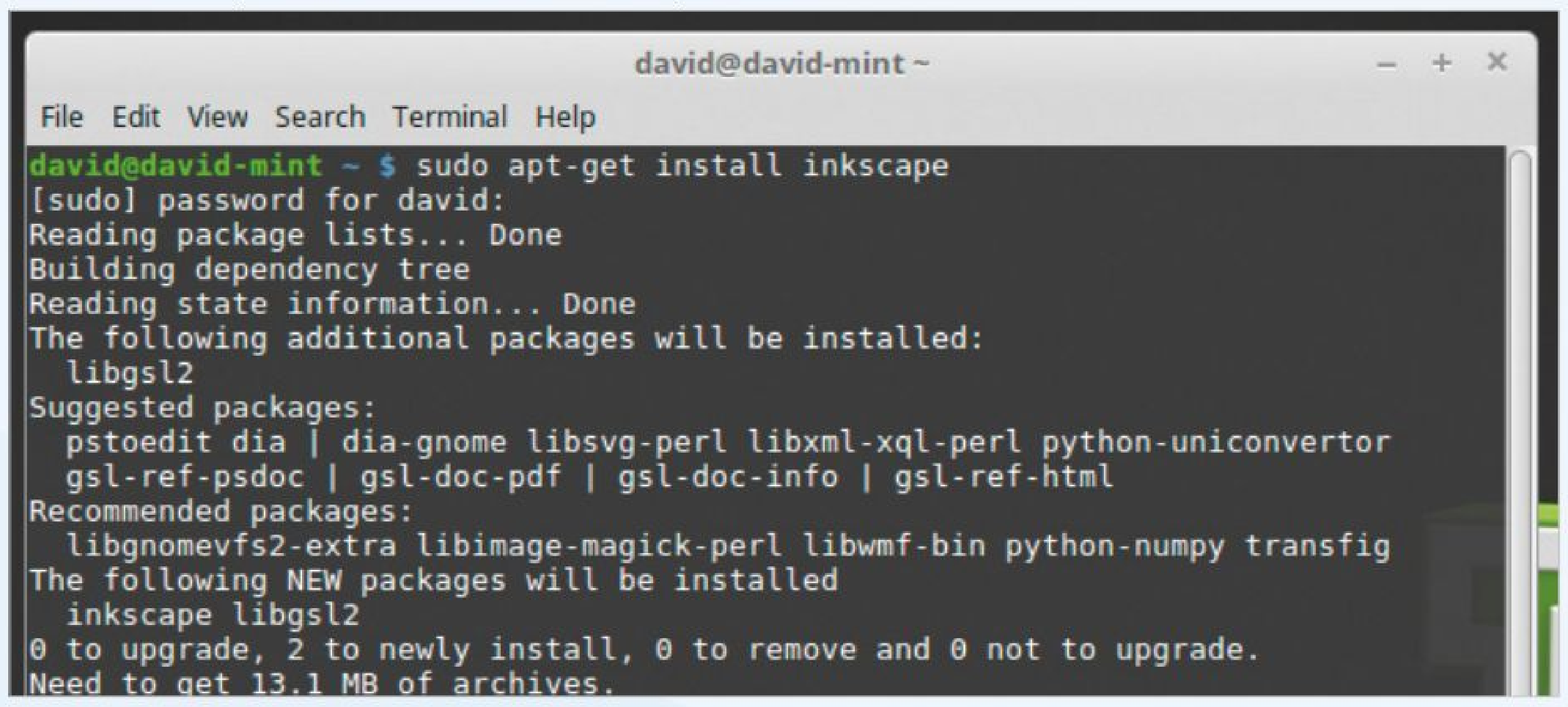
Hacker.pdf - LibreOffice Draw
Export
Name:
Hacker
Save in folder:
david
Documents
Weekend Gamer
Week5 Sunday Hacker
Create Folder
Places
Search
Recently Used
Desktop
File System
Documents
Music
Pictures
Videos
Downloads
Hacker.pdf
PDF - Portable Document Format (.pdf)
Selection
Cancel
Save

STEP 4 Not all PDFs are created equally however, some have been created by an Adobe product and others by other apps. These often have a layer of security preventing them from being re-edited which is reasonable for copyrighted material. You can open such a PDF in LibreOffice Draw, but you' can only edit the images and text placements.



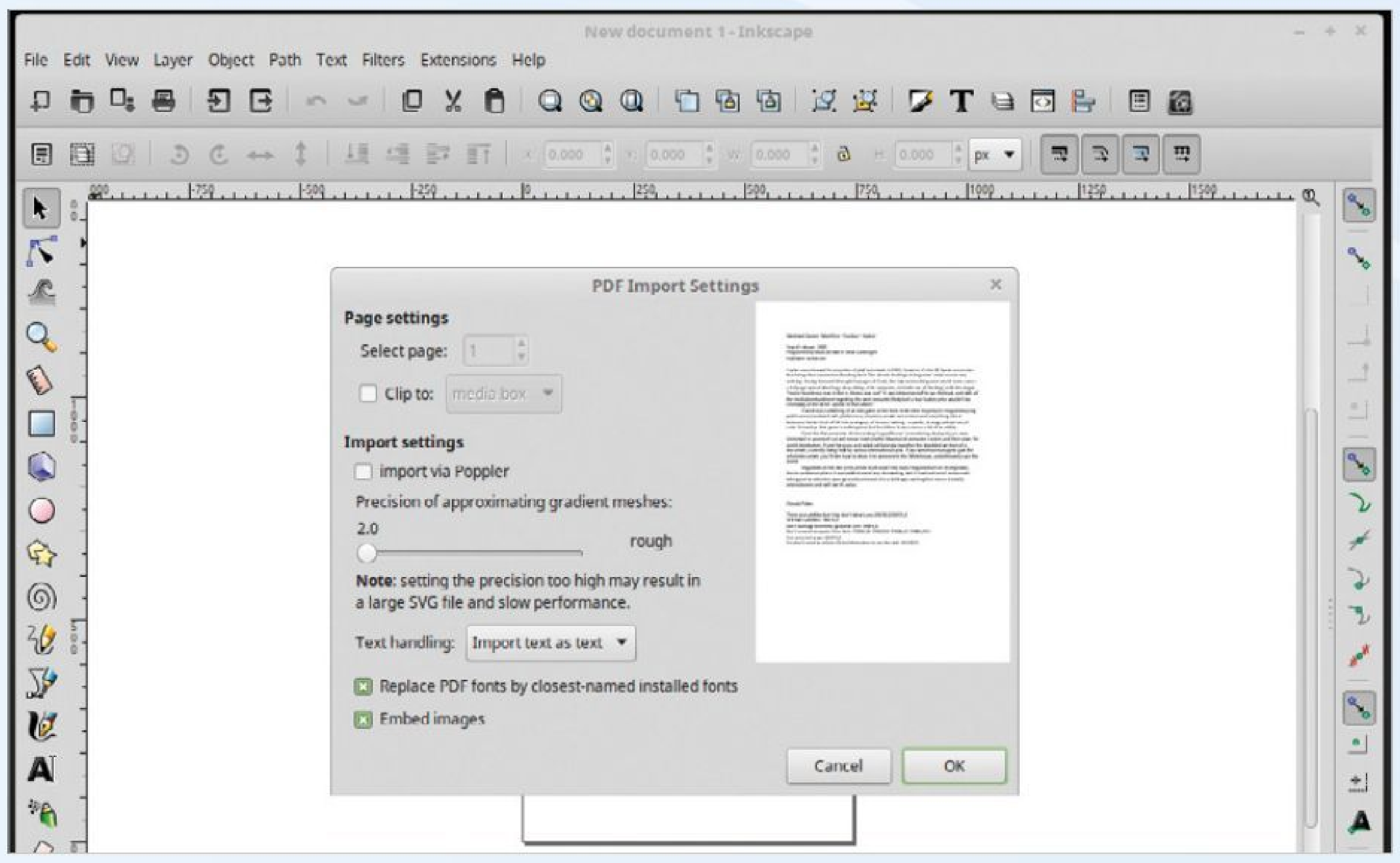
Basic_Programming.pdf - LibreOffice Draw
Pages
sinclair
ZX SPECTRUM
BASIC programming
Properties
Character
Paragraph
Area
Shadow
Graphic
Line
Position and Size
Keep ratio
Bitmap selected
Slide 1 of 216 (Layout)
master-page3

STEP 5 Another app worth looking into for editing an existing PDF, although not the text, or a PDF created form a scanned document is Inkscape. Use sudo apt-get install inkscape, then run Inkscape from Menu > Graphics.


david@david-mint ~
File Edit View Search Terminal Help

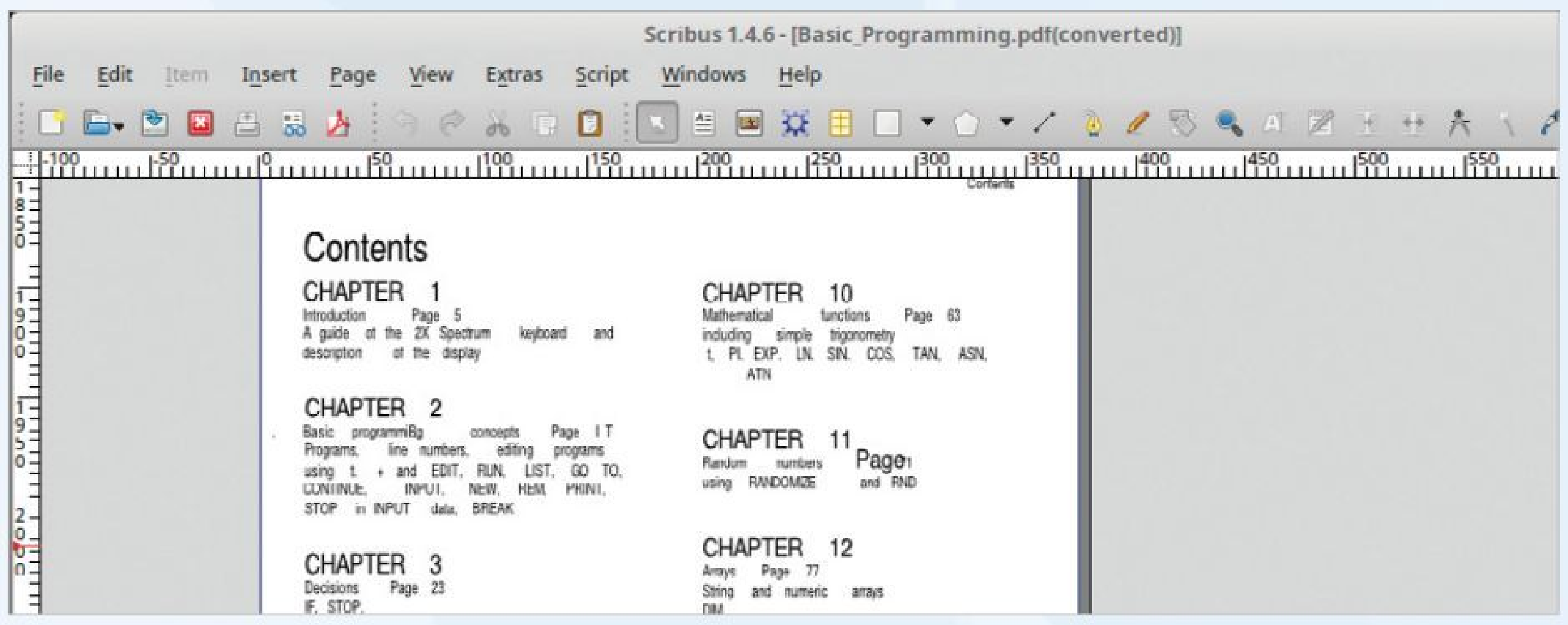
```
david@david-mint ~ $ sudo apt-get install inkscape
[sudo] password for david:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libgsl2
Suggested packages:
  pstoedit dia | dia-gnome libsvg-perl libxml-xql-perl python-uniconvertor
  gsl-ref-psdoc | gsl-doc-pdf | gsl-doc-info | gsl-ref-html
Recommended packages:
  libgnomevfs2-extra libimage-magick-perl libwmf-bin python-numpy transfig
The following NEW packages will be installed
  inkscape libgsl2
0 to upgrade, 2 to newly install, 0 to remove and 0 not to upgrade.
Need to get 13.1 MB of archives.
```

STEP 6 Click on the Open file icon, or use File > Open, to locate the PDF, then click the Open button. Inkscape has its limitations though; for example it only imports one page at a time by default. However, for small PDFs it does an okay job of adding annotations and highlights.


New document 1 - Inkscape
File Edit View Layer Object Path Text Filters Extensions Help
PDF Import Settings
Cancel
OK

Page settings
Select page: 1
☐ Clip to: media box
Import settings
☐ import via Poppler
Precision of approximating gradient meshes:
2.0 rough
Note: setting the precision too high may result in a large SVG file and slow performance.
Text handling: Import text as text
☒ Replace PDF fonts by closest-named installed fonts
☒ Embed images

STEP 7 One last app worth looking into for PDF editing duties is Scribus. Scribus is an open source desktop publishing app and one of the best available for Linux-based computers; it's also extremely easy to use. To install it use: sudo apt-get install scribus, and open it from Menu > Graphics.


Scribus 1.4.6 - [Basic_Programming.pdf(converted)]
File Edit Item Insert Page View Extras Script Windows Help

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A guide of the ZX Spectrum keyboard and description of the display

CHAPTER 2
Basic programmiBg concepts Page I T
Programs, line numbers, editing programs using t + and EDIT, RUN, LIST, GO TO, CONTINUE, INPUT, NEW, REM, PRINT, STOP in INPUT data, BREAK

CHAPTER 3
Decisions Page 23
IF, STOP,

CHAPTER 10
Mathematical functions Page 63
including simple trigonometry
t, PI, EXP, LN, SIN, COS, TAN, ASN, ATN

CHAPTER 11
Random numbers Page
using RANDOMIZE and RND

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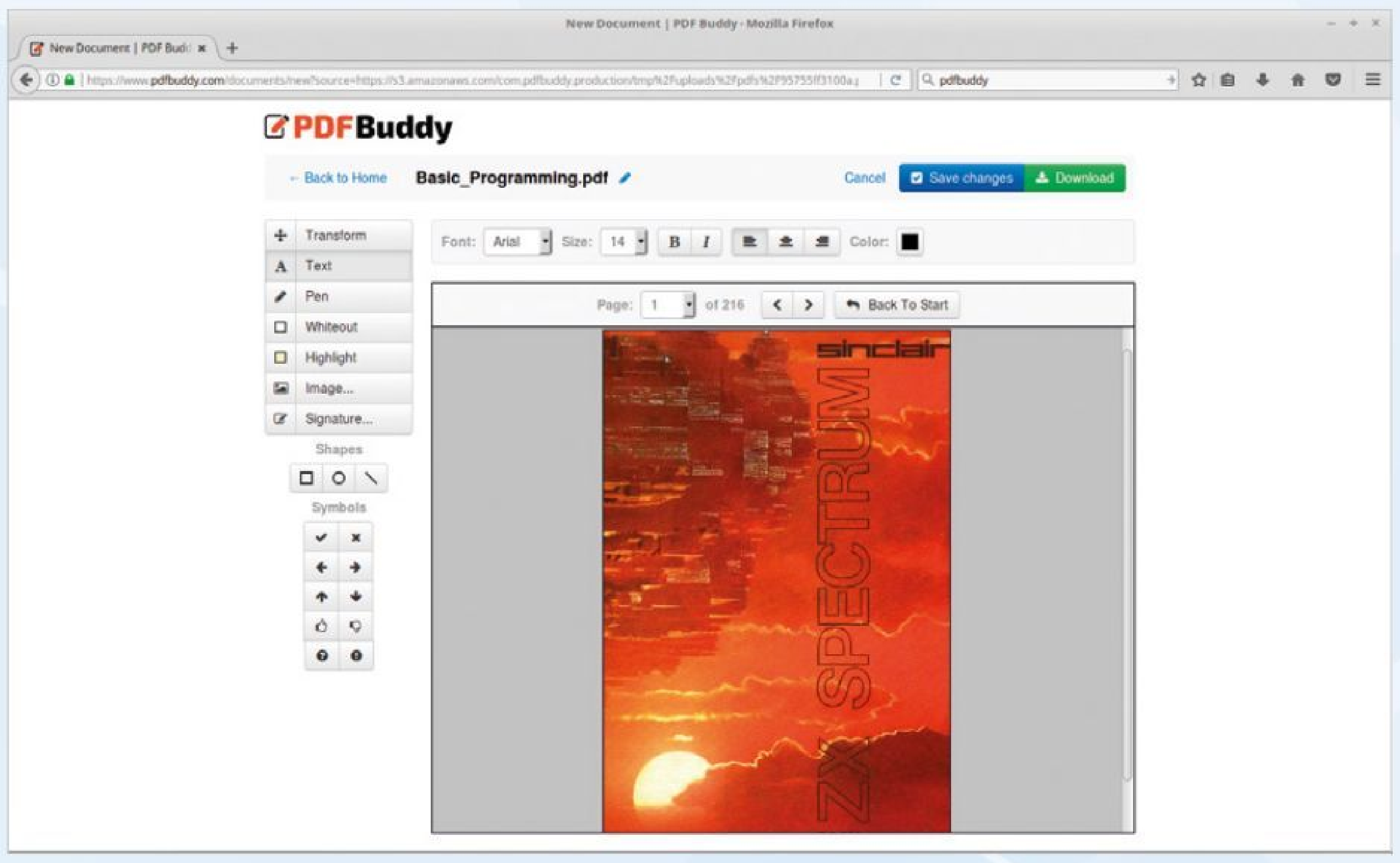
Arrays Page 77
String and numeric arrays

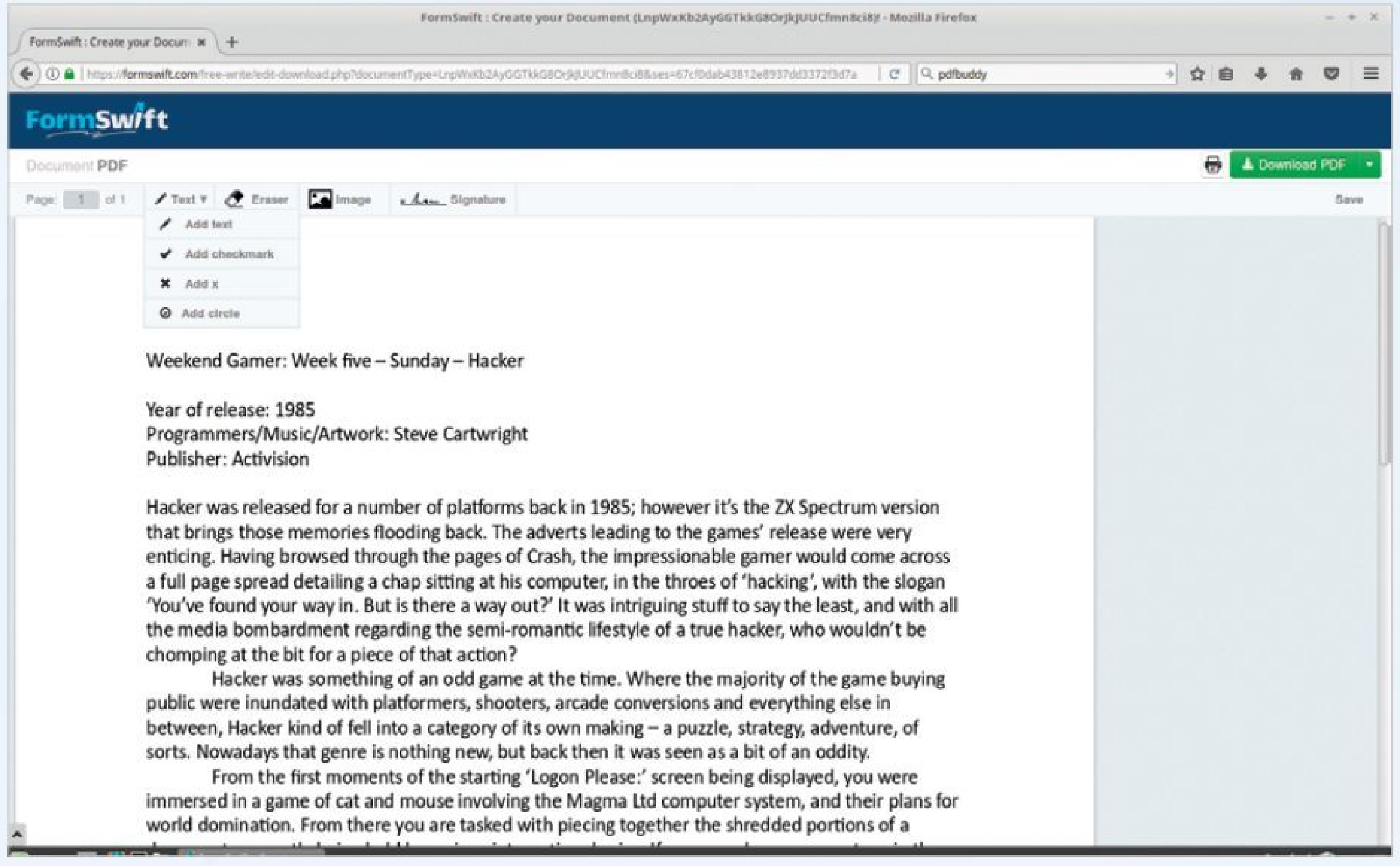
STEP 8 Providing the PDF you're working on doesn't contain any sensitive information, you could use an online resource such as PDF Buddy. Found at www.pdfbuddy.com, PDF Buddy will allow you to upload a copy of the PDF for editing. It has its limitations but there's still a lot that can be done with it.


New Document | PDF Buddy - Mozilla Firefox
PDFBuddy
← Back to Home
Basic_Programming.pdf
Cancel
Save changes
Download
Transform
Text
Pen
Whiteout
Highlight
Image...
Signature...
Shapes
Symbols
Font: Arial
Size: 14
Color:
Page: 1 of 216
Back To Start
sinclair
ZX SPECTRUM

THE ONLINE OPTION

In this modern Internet world we don't always need to have an app installed on the system, there's plenty of choice available online from cloud-based services.

STEP 1 Online document editing is likely to be something we all will be doing a lot more of in the future. We've already looked at one such site, PDF Buddy but here are two more. FormSwift is an excellent PDf editor that will allow you to add text, erase and add images. Upload your PDF to www.formswift.com/edit-pdf and follow the instructions.


FormSwift : Create your Document - Mozilla Firefox
FormSwift
Document PDF
Download PDF
Page: 1 of 1
Text
Eraser
Image
Signature
Save
Add text
Add checkmark
Add x
Add circle

Weekend Gamer: Week five – Sunday – Hacker

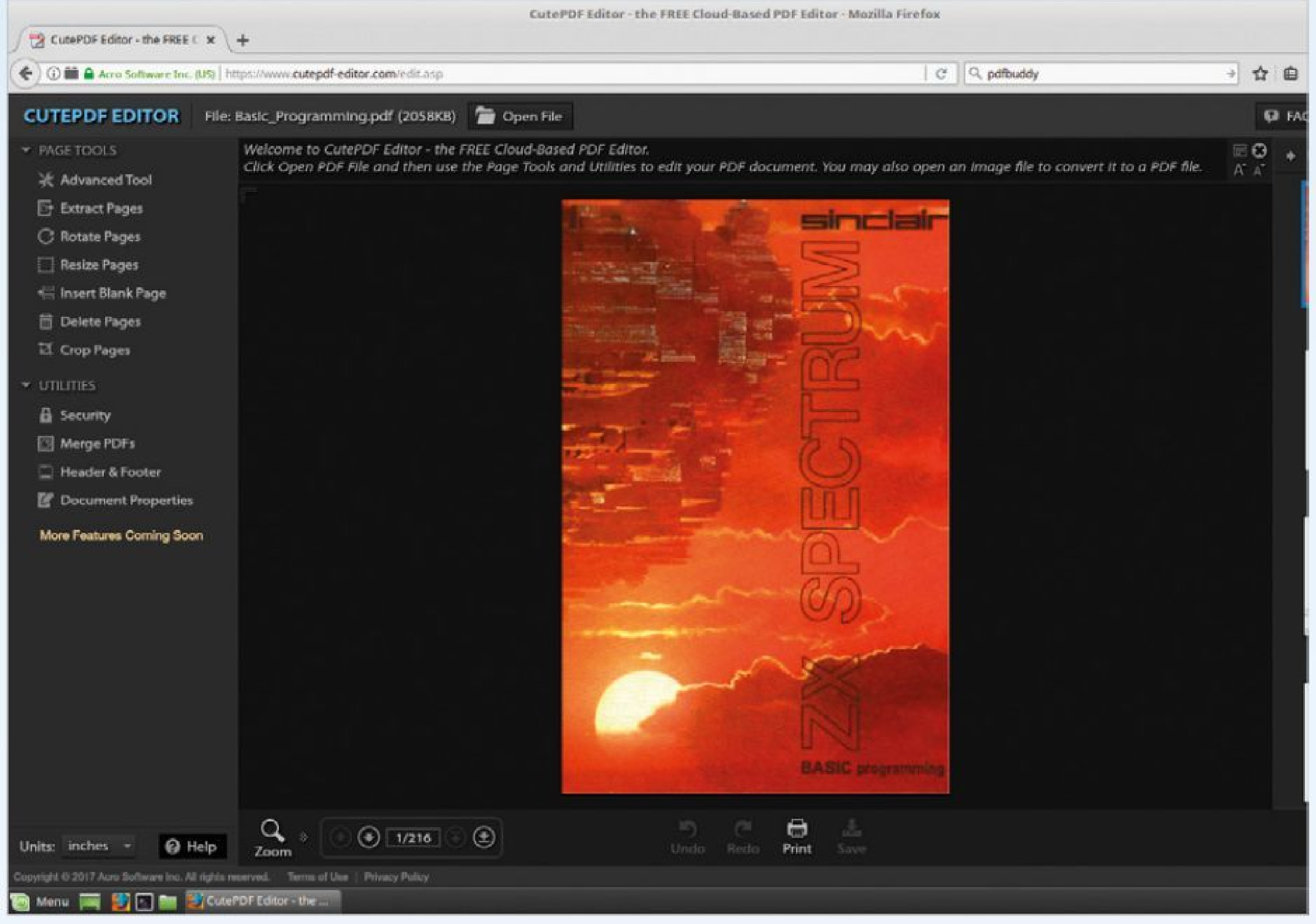
Year of release: 1985
Programmers/Music/Artwork: Steve Cartwright
Publisher: Activision

Hacker was released for a number of platforms back in 1985; however it's the ZX Spectrum version that brings those memories flooding back. The adverts leading to the games' release were very enticing. Having browsed through the pages of Crash, the impressionable gamer would come across a full page spread detailing a chap sitting at his computer, in the throes of 'hacking', with the slogan 'You've found your way in. But is there a way out?' It was intriguing stuff to say the least, and with all the media bombardment regarding the semi-romantic lifestyle of a true hacker, who wouldn't be chomping at the bit for a piece of that action?

Hacker was something of an odd game at the time. Where the majority of the game buying public were inundated with platformers, shooters, arcade conversions and everything else in between, Hacker kind of fell into a category of its own making – a puzzle, strategy, adventure, of sorts. Nowadays that genre is nothing new, but back then it was seen as a bit of an oddity.

From the first moments of the starting 'Logon Please:' screen being displayed, you were immersed in a game of cat and mouse involving the Magma Ltd computer system, and their plans for world domination. From there you are tasked with piecing together the shredded portions of a

STEP 2 Another excellent site is CutePDF Editor, at www.cutepdf-editor.com/. It's remarkably easy to use and allows you to make multiple edits to an existing PDF through its Page Tools options.


CutePDF Editor - the FREE Cloud-Based PDF Editor - Mozilla Firefox
CUTEPDF EDITOR
Open File
PAGE TOOLS
Advanced Tool
Extract Pages
Rotate Pages
Resize Pages
Insert Blank Page
Delete Pages
Crop Pages
UTILITIES
Security
Merge PDFs
Header & Footer
Document Properties
More Features Coming Soon
Help
Zoom
1/216
Undo
Redo
Print
Save
sinclair
ZX SPECTRUM
BASIC programming

File: Basic_Programming.pdf (2058KB)

Welcome to CutePDF Editor - the FREE Cloud-Based PDF Editor.
Click Open PDF File and then use the Page Tools and Utilities to edit your PDF document. You may also open an image file to convert it to a PDF file.

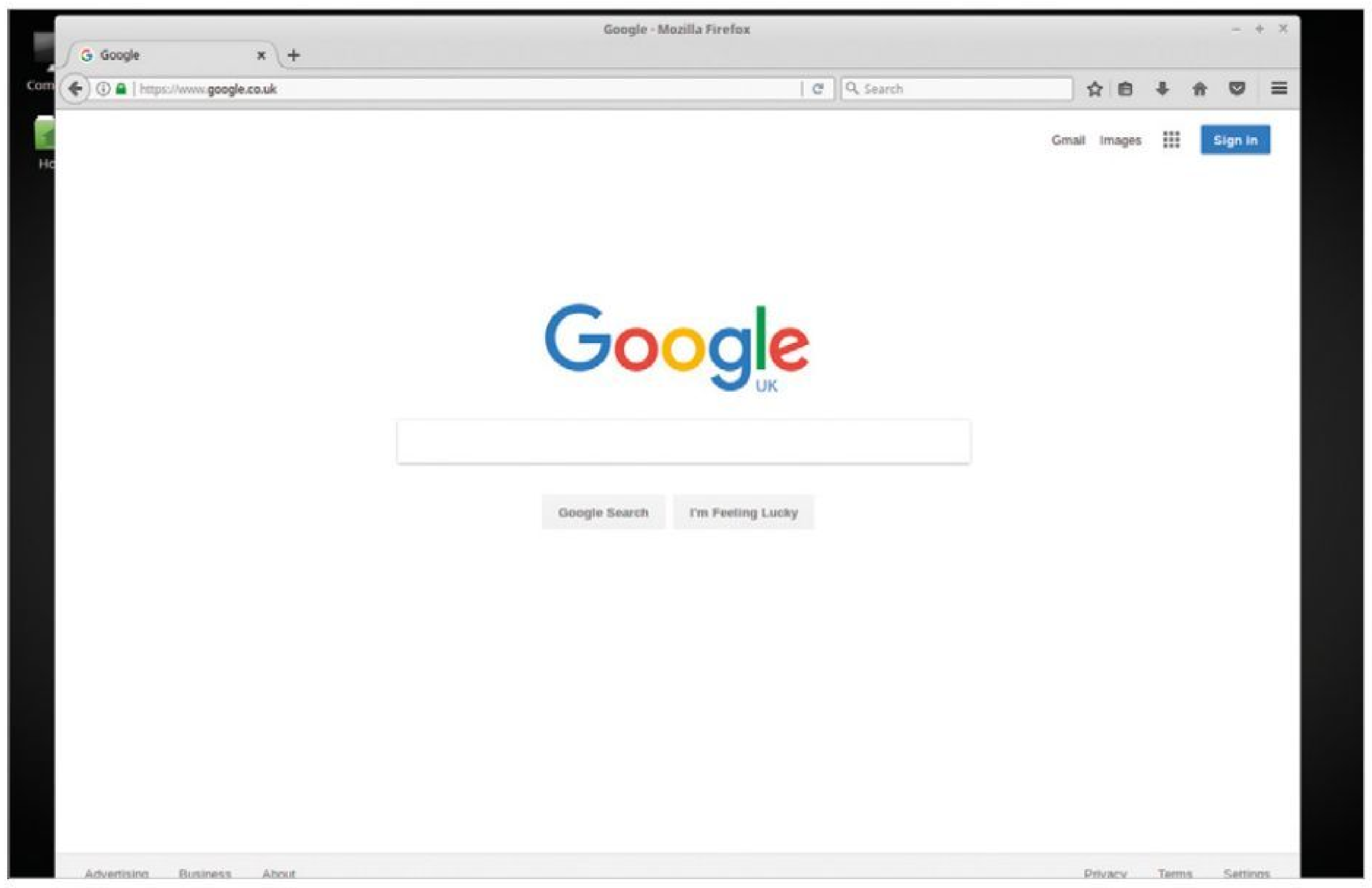
Becoming Anonymous Online

The digital age has led to many great advances and communications; however, it has also brought on a new age of spying and snooping. The media is rife with stories of governments, clandestine organisations and hackers breaching privacy.

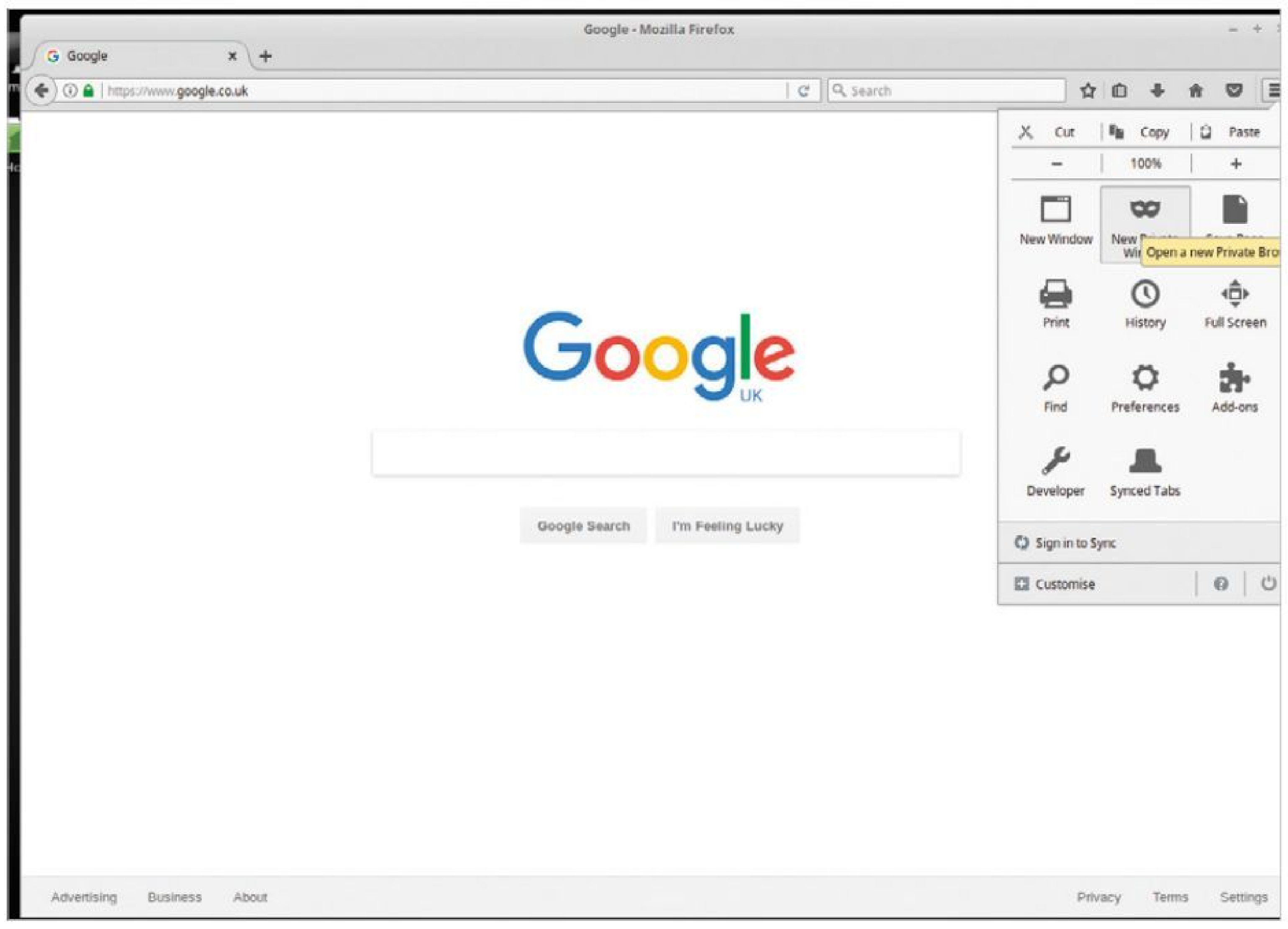
ANONYMITY WITH MINT

Whilst it's virtually impossible to become totally anonymous online, as there's always some way around most privacy systems, you can take measures to ensure your privacy is at its best.

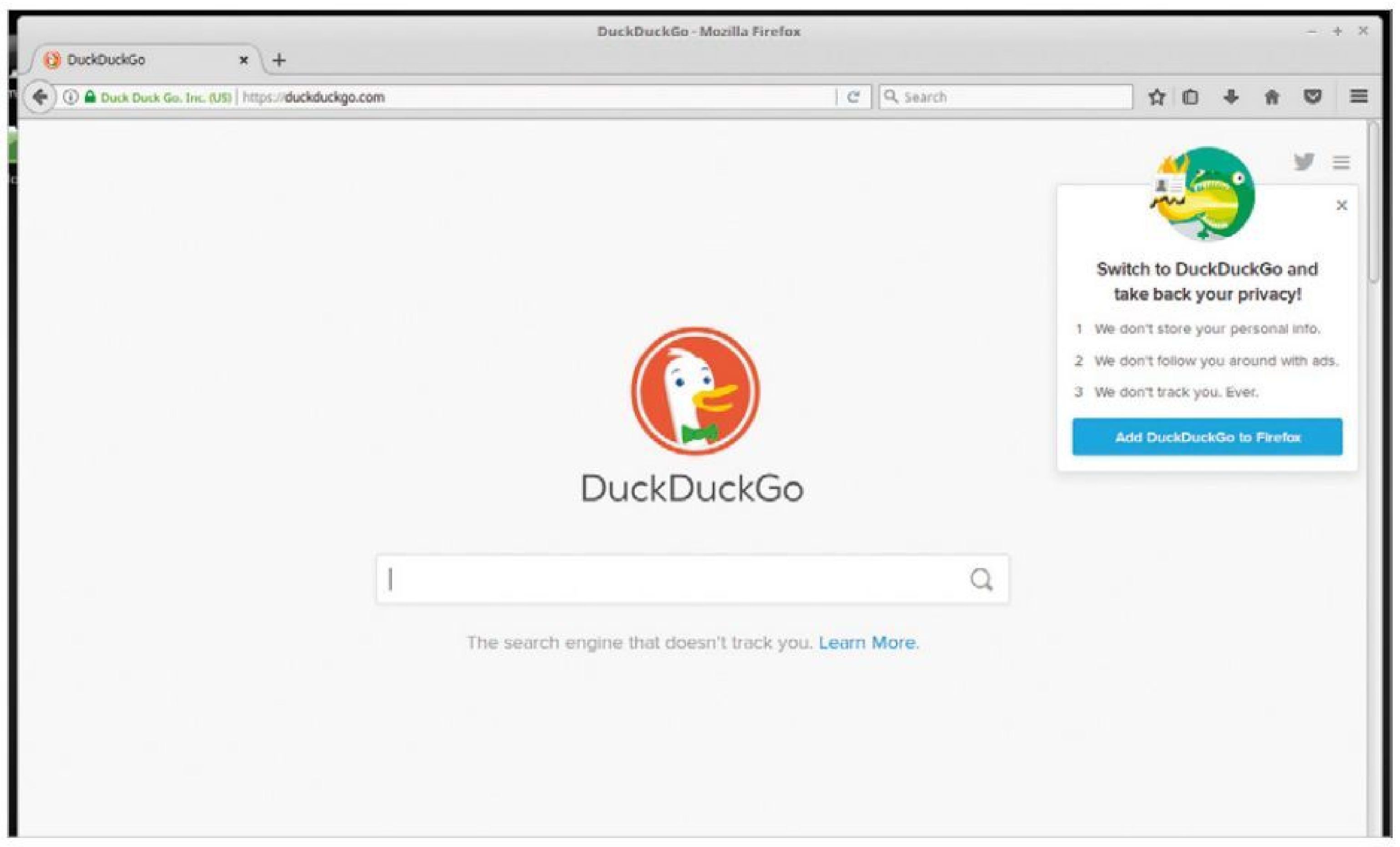
STEP 1 Starting with the basics, when browsing use HTTPS instead of the standard HTTP. This means that anything that's transmitted over HTTPS is secure (hence the S part at the end) and encrypted.


Google - Mozilla Firefox
Google
https://www.google.co.uk
Search
Gmail
Images
Sign in
Google
UK
Google Search
I'm Feeling Lucky
Advertising
Business
About
Privacy
Terms
Settings

STEP 2 When you're browsing, consider using the Incognito or Private browsing modes available in a browser. This disables your web history and web cache, allowing you to browse without the details being stored for later scrutiny by someone else.


Google - Mozilla Firefox
Google
https://www.google.co.uk
Search
Cut
Copy
Paste
100%
New Window
Open a new Private Bro
Print
History
Full Screen
Find
Preferences
Add-ons
Developer
Synced Tabs
Sign in to Sync
Customise
Google
UK
Google Search
I'm Feeling Lucky
Advertising
Business
About
Privacy
Terms
Settings

STEP 3 Although using Google may seem like the obvious choice for a modern Internet search, the company does track all searches made by an individual. Instead, consider an alternative search engine, such as DuckDuckGo, a search engine that doesn't store personal data or track you.

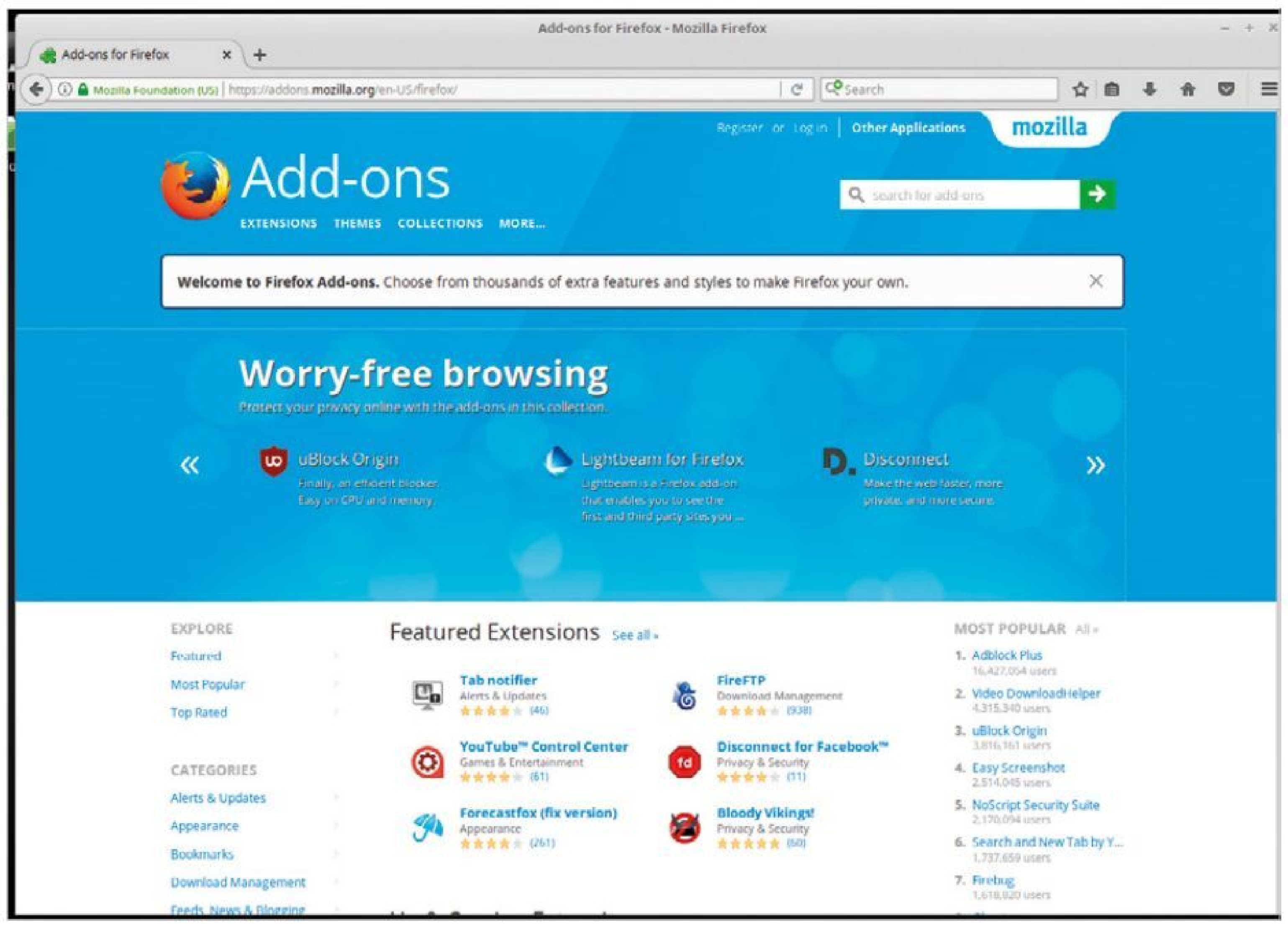

DuckDuckGo - Mozilla Firefox
DuckDuckGo
Duck Duck Go, Inc. (US)
https://duckduckgo.com
Search
DuckDuckGo
Add DuckDuckGo to Firefox

Switch to DuckDuckGo and take back your privacy!

1 We don't store your personal info.
2 We don't follow you around with ads.
3 We don't track you. Ever.

The search engine that doesn't track you. Learn More.

STEP 4 If you're regularly on the Internet then consider installing some of the browser plug-ins that enhance your privacy. For example, for Firefox, use Ghostery, NoScript and Adblock Plus to block trackers, adverts and other data mining techniques.


Add-ons for Firefox - Mozilla Firefox
Add-ons for Firefox
Mozilla Foundation (US)
https://addons.mozilla.org/en-US/firefox/
Search
Register or Log in
Other Applications
mozilla
Add-ons
EXTENSIONS
THEMES
COLLECTIONS
MORE...
search for add-ons
uBlock Origin
Lightbeam for Firefox
Disconnect
EXPLORE
Featured
Most Popular
Top Rated
CATEGORIES
Alerts & Updates
Appearance
Bookmarks
Download Management
Featured Extensions
See all »
Tab notifier
FireFTP
YouTube™ Control Center
Disconnect for Facebook™
Forecastfox (fix version)
Bloody Vikings!
MOST POPULAR
1. Adblock Plus
2. Video DownloadHelper
3. uBlock Origin
4. Easy Screenshot
5. NoScript Security Suite
6. Search and New Tab by Y...
7. Firebug

Welcome to Firefox Add-ons. Choose from thousands of extra features and styles to make Firefox your own.

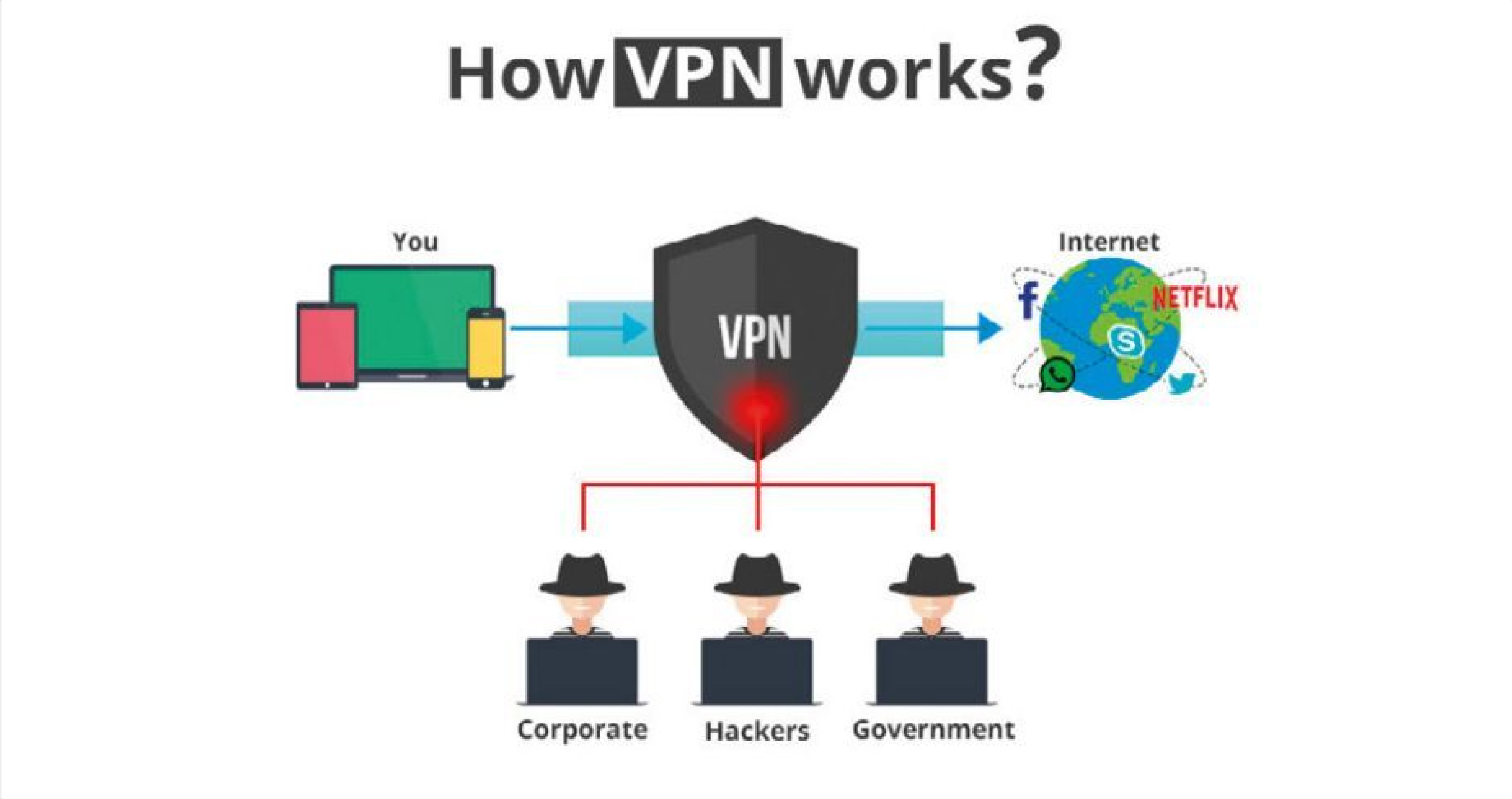
Worry-free browsing

Protect your privacy online with the add-ons in this collection.

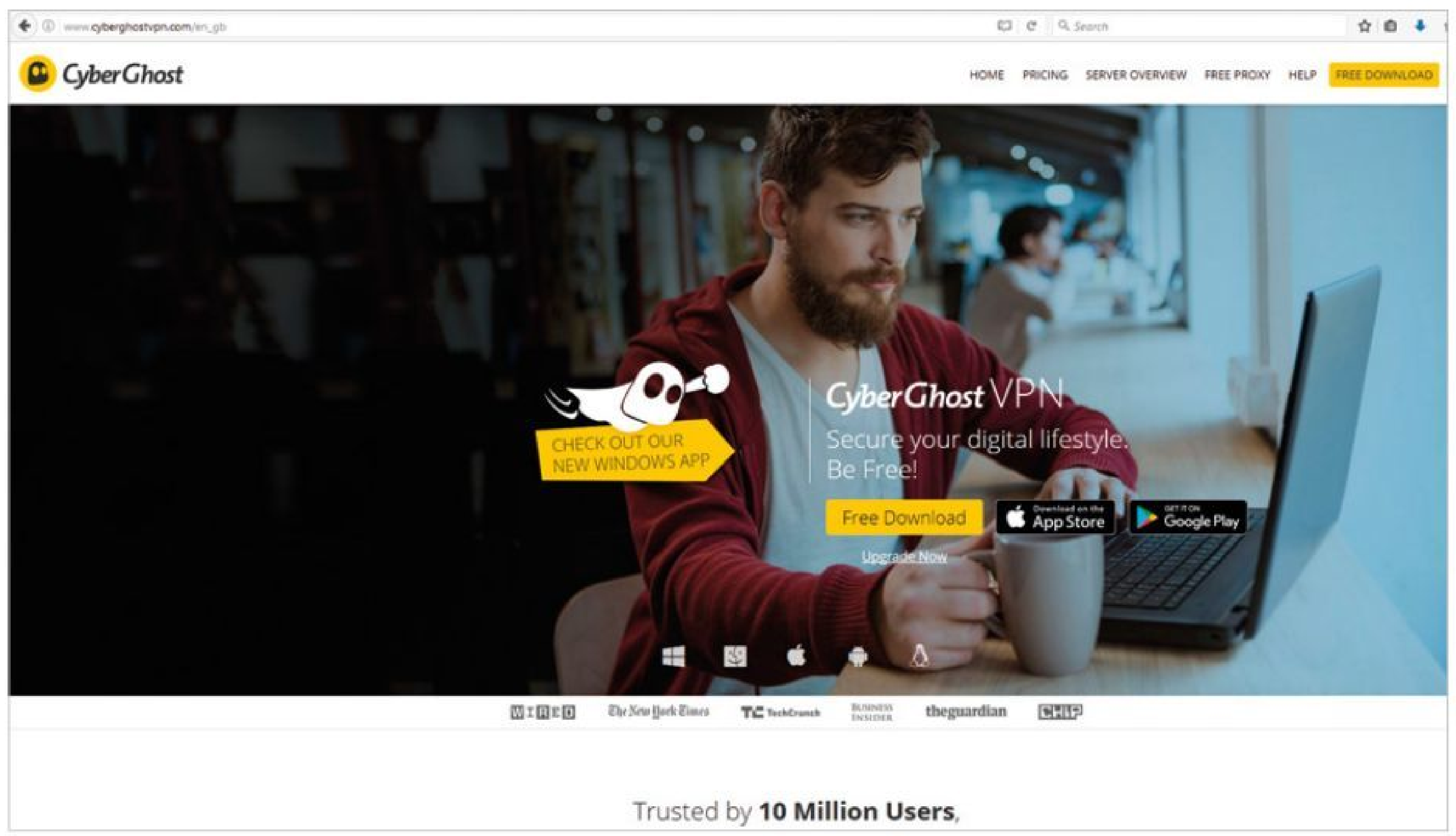
VPNS AND TOR

The previous steps will aid your online privacy but to really become anonymous you'll need a Virtual Private Network and Tor.

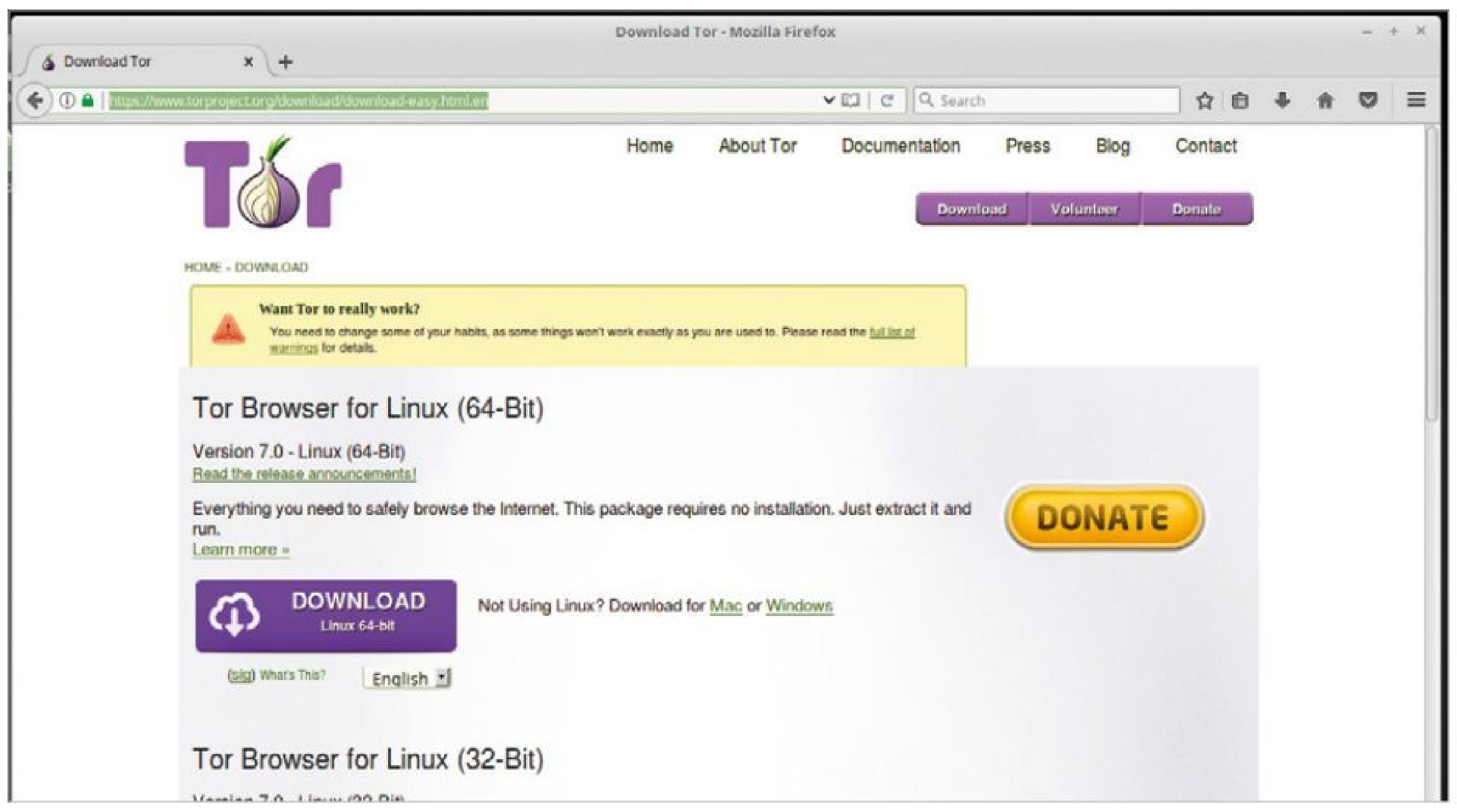
STEP 1 A VPN is a remote server, or cluster of servers, that establishes a connection with your computer. The end result is that your computer's identity on the Internet is hidden behind the VPN remote server. So you could live in the UK but have an IP address (the computer online identity) belonging to Iceland.


How VPN works?
You
VPN
Internet
NETFLIX
Corporate
Hackers
Government

STEP 2 Most good VPNs charge a monthly or annual fee but it's worth the expense. We use CyberGhost, www.cyberghostvpn.com, which offers VPN connections for Windows, Mac, Mint (as well as other Linux distros), Android and iOS devices. Details for each OS can be found at www.support.cyberghostvpn.com/hc/en-us/articles/213190329-Read-me-first-.


CyberGhost
HOME
PRICING
SERVER OVERVIEW
FREE PROXY
HELP
FREE DOWNLOAD
CHECK OUT OUR NEW WINDOWS APP
CyberGhost VPN
Secure your digital lifestyle.
Be Free!
Free Download
App Store
Google Play
Upgrade Now
theguardian
Trusted by 10 Million Users,

STEP 3 Another option is to use Tor. Tor is an open network that you can attach to that hides your IP address behind countless nodes around the world. It's available for Windows, Mac and Linux computers, and it's very easy to install and use. Start by navigating to www.www.torproject.org/download/download-easy.html.en and clicking on the Download Linux 64-bit button.


Download Tor - Mozilla Firefox
Download Tor
https://www.torproject.org/download/download-easy.html.en
Search
Home
About Tor
Documentation
Press
Blog
Contact
Download
Volunteer
Donate
HOME » DOWNLOAD
DONATE
DOWNLOAD
Linux 64-bit
(sig) What's This?
English

Want Tor to really work?

You need to change some of your habits, as some things won't work exactly as you are used to. Please read the full list of warnings for details.

Tor Browser for Linux (64-Bit)

Version 7.0 - Linux (64-Bit)

Read the release announcements!

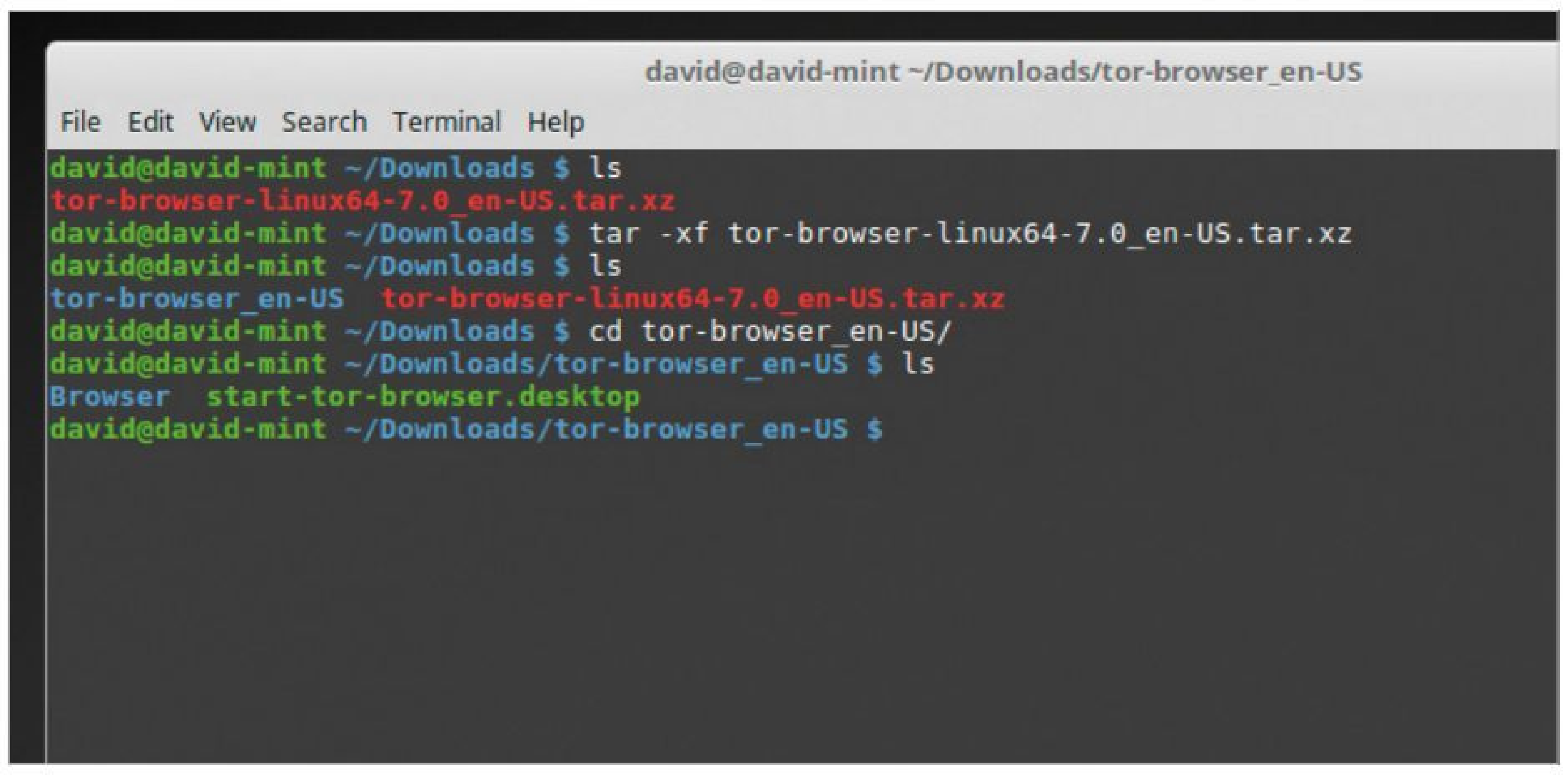
Everything you need to safely browse the Internet. This package requires no installation. Just extract it and run.

Learn more »

Not Using Linux? Download for Mac or Windows

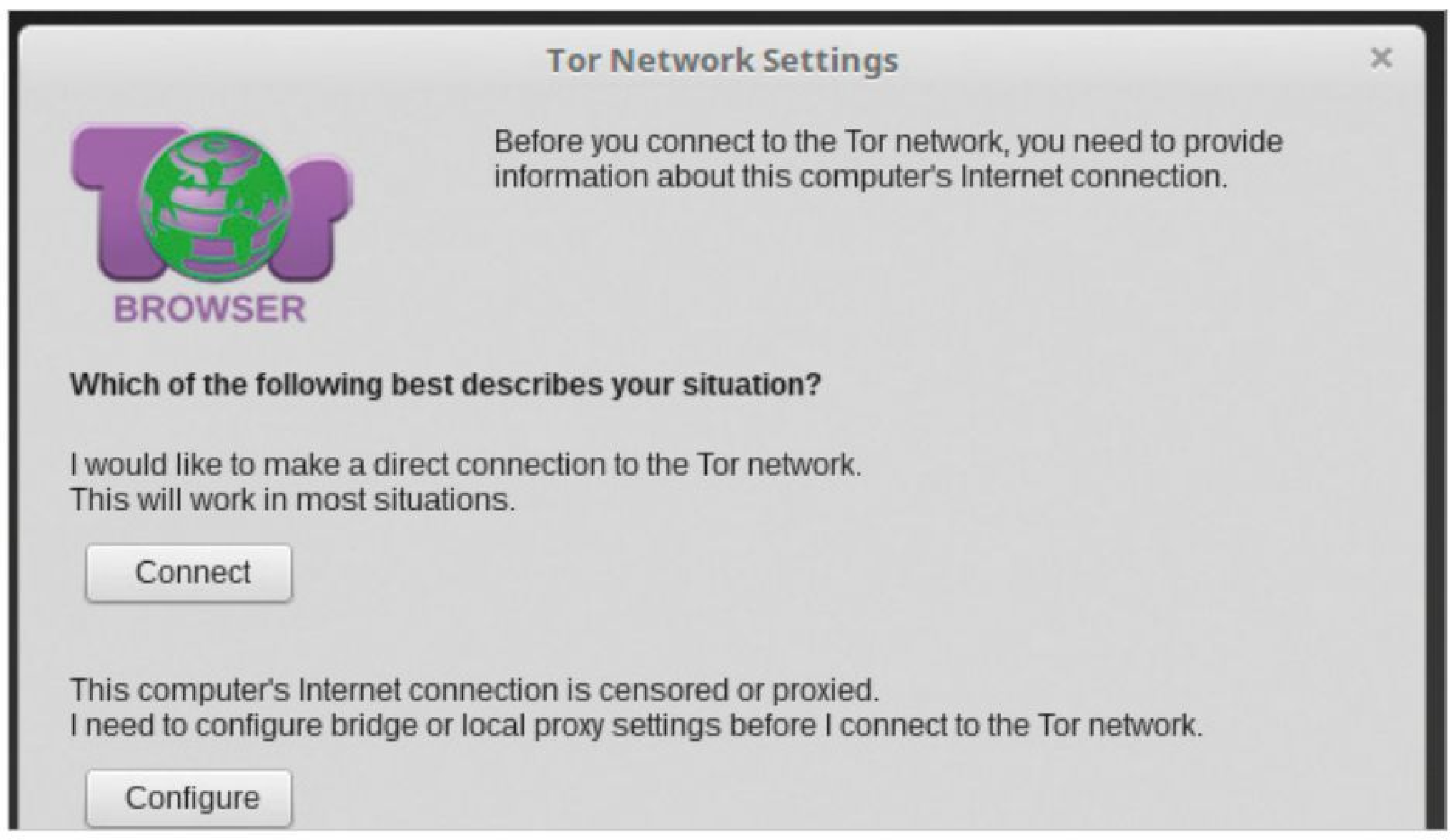
Tor Browser for Linux (32-Bit)

STEP 4 When the download has finished, drop into a Terminal session and enter the Downloads folder, `cd Downloads/`. Enter `ls` to check the tar.xz Tor file is present, if so enter: `tar -xf tor-browser-linux64-6.0.8_en-US.tar.xz`. When the files are unpacked, use `cd tor-browser_en-US/` to enter the new folder.


david@david-mint ~/Downloads/tor-browser_en-US
File
Edit
View
Search
Terminal
Help

```
david@david-mint ~/Downloads $ ls
tor-browser-linux64-7.0_en-US.tar.xz
david@david-mint ~/Downloads $ tar -xf tor-browser-linux64-7.0_en-US.tar.xz
david@david-mint ~/Downloads $ ls
tor-browser_en-US  tor-browser-linux64-7.0_en-US.tar.xz
david@david-mint ~/Downloads $ cd tor-browser_en-US/
david@david-mint ~/Downloads/tor-browser_en-US $ ls
Browser  start-tor-browser.desktop
david@david-mint ~/Downloads/tor-browser_en-US $
```

STEP 5 A quick ls reveals a couple of entries, a folder called Browser and a file `called start-tor-browser.desktop`. To start the Tor set up, type `./start-tor-browser.desktop`. This command will launch the Tor set up, where you're be offered two options: Connect or Configure. For most users, the Connect option will suffice. Click Connect when you're ready.


Tor Network Settings
BROWSER
Connect
Configure

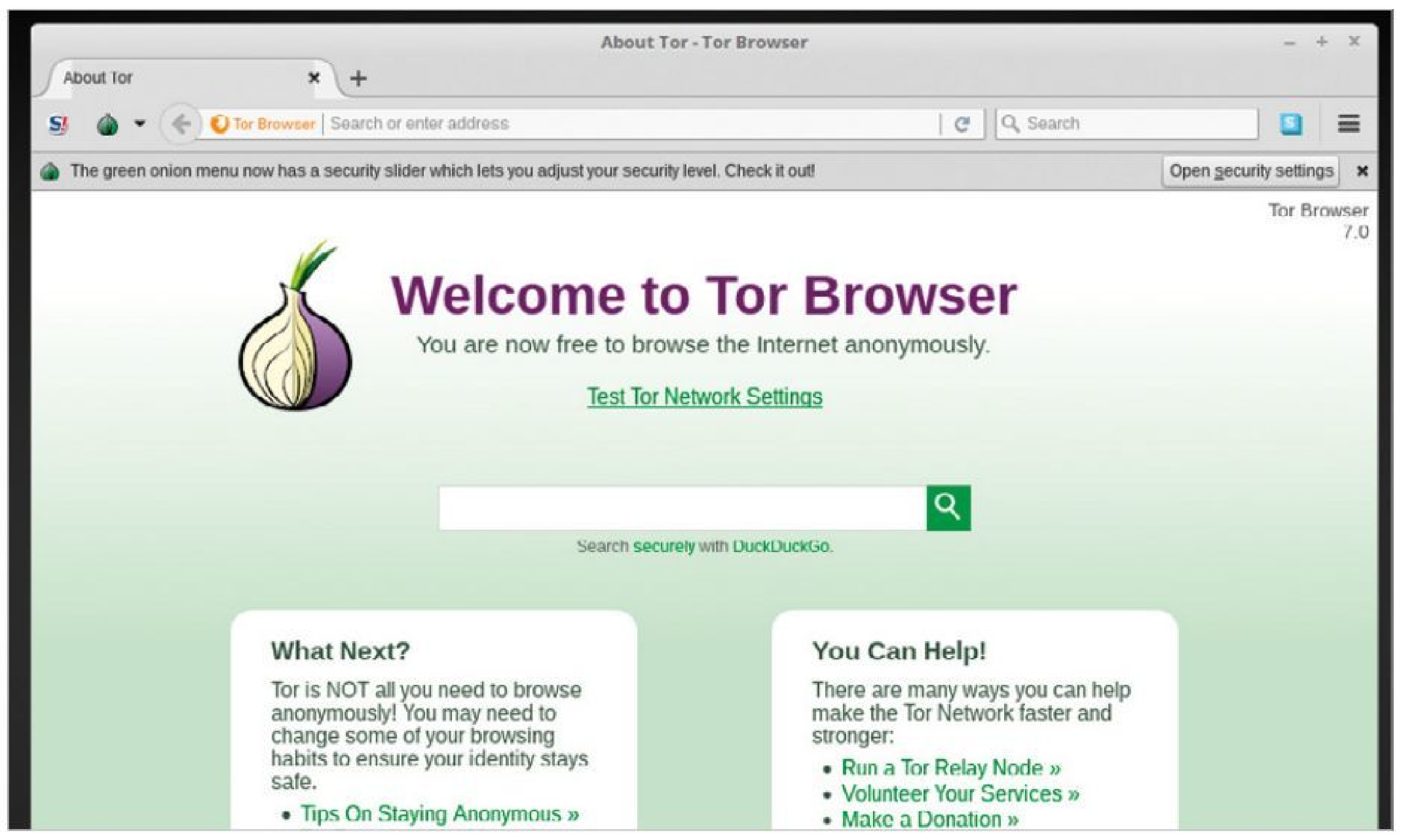
Before you connect to the Tor network, you need to provide information about this computer's Internet connection.

Which of the following best describes your situation?

I would like to make a direct connection to the Tor network.
This will work in most situations.

This computer's Internet connection is censored or proxied.
I need to configure bridge or local proxy settings before I connect to the Tor network.

STEP 6 After the connection is established, the Tor Browser will launch. This is a customised version of Firefox and from here you can securely browse the Internet without fear of being viewed or tracked. Mixing both a VPN and Tor makes for an extremely secure, and private connection to the online world.


About Tor - Tor Browser
About Tor
Tor Browser
Search or enter address
Search
Open security settings
Tor Browser
7.0
Test Tor Network Settings
Run a Tor Relay Node »
Volunteer Your Services »
Make a Donation »
Tips On Staying Anonymous »

The green onion menu now has a security slider which lets you adjust your security level. Check it out!

Welcome to Tor Browser

You are now free to browse the Internet anonymously.

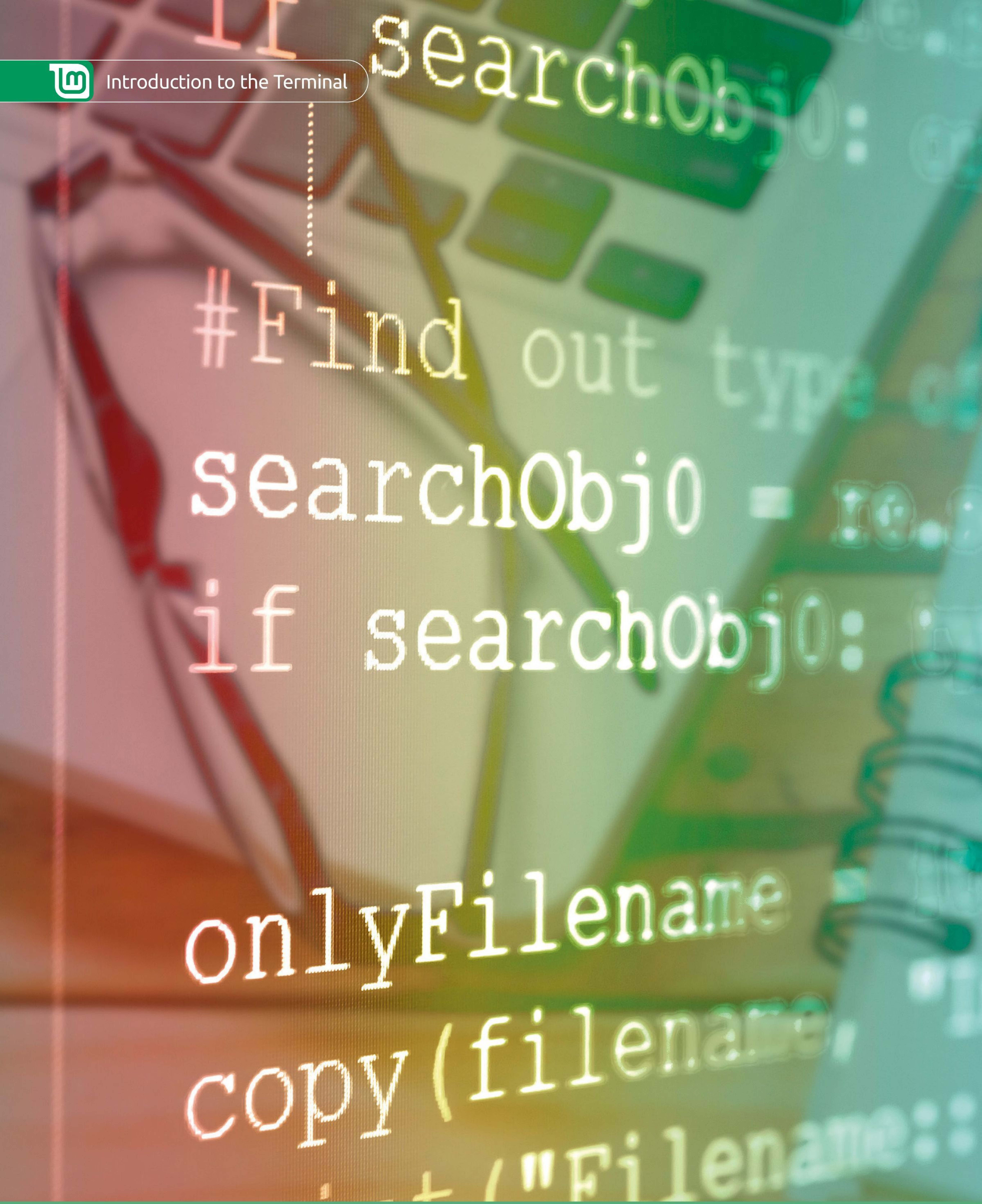
Search securely with DuckDuckGo.

What Next?

Tor is NOT all you need to browse anonymously! You may need to change some of your browsing habits to ensure your identity stays safe.

You Can Help!

There are many ways you can help make the Tor Network faster and stronger:


if searchObj0:
#Find out type
searchObj0 = re.
if searchObj0:
onlyFilename
copy(filename,
("Filename:

Introduction to the Terminal

The Terminal, or command line, can be a daunting looking place to visit for the newcomer. However, it's a remarkably easy interface to get used to. We'll look at how it works, how you can update, upgrade and install new apps via the Terminal; and to show that the Terminal isn't solely for bearded gurus, we'll throw in some fun things to do too.

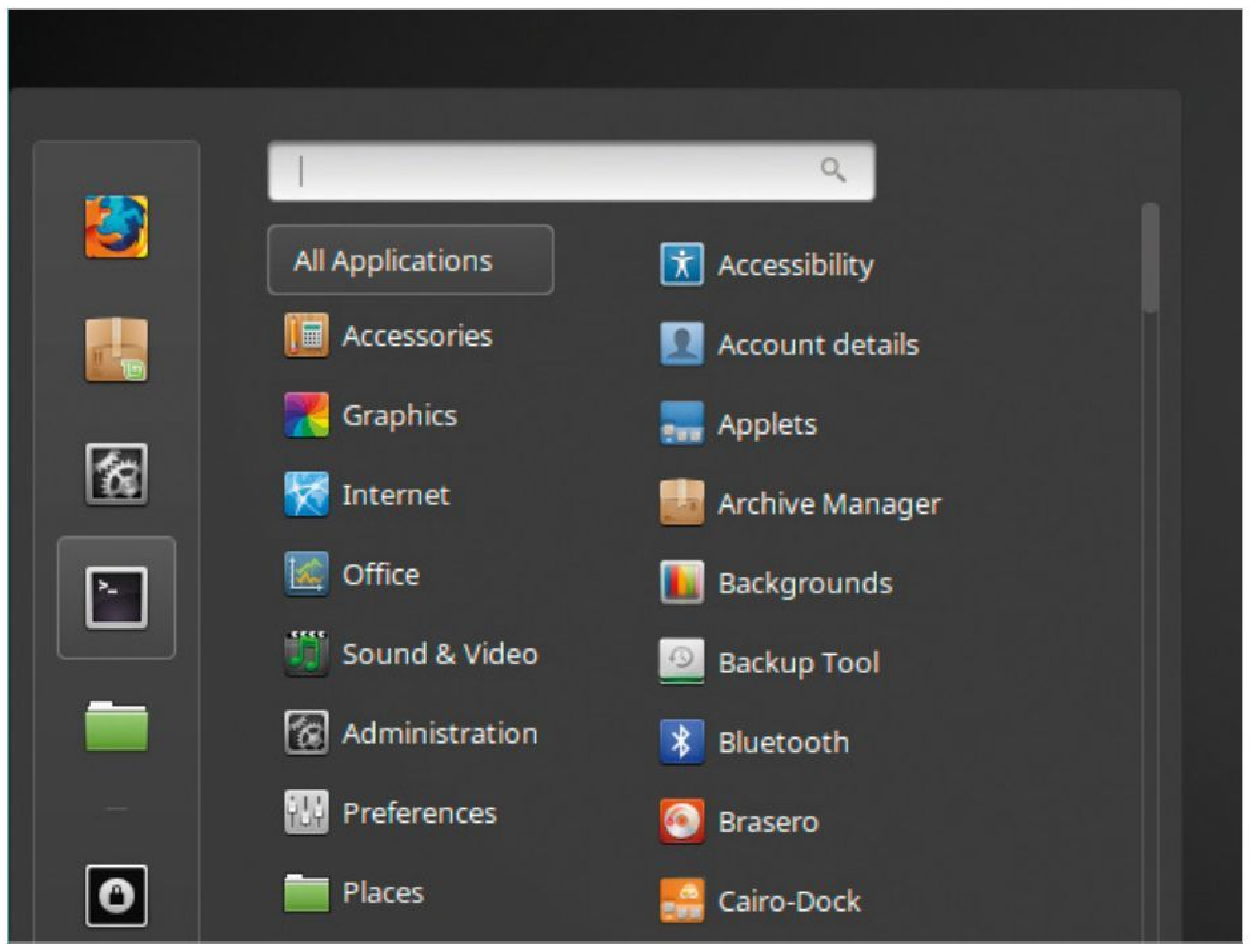
Basics of the Terminal

Operating systems use two kinds of interface: the GUI, which is the desktop that Windows etc., boot into and the command line. Modern operating systems shy away from the command line but Mint uses the Terminal, granting the user greater control of the system.

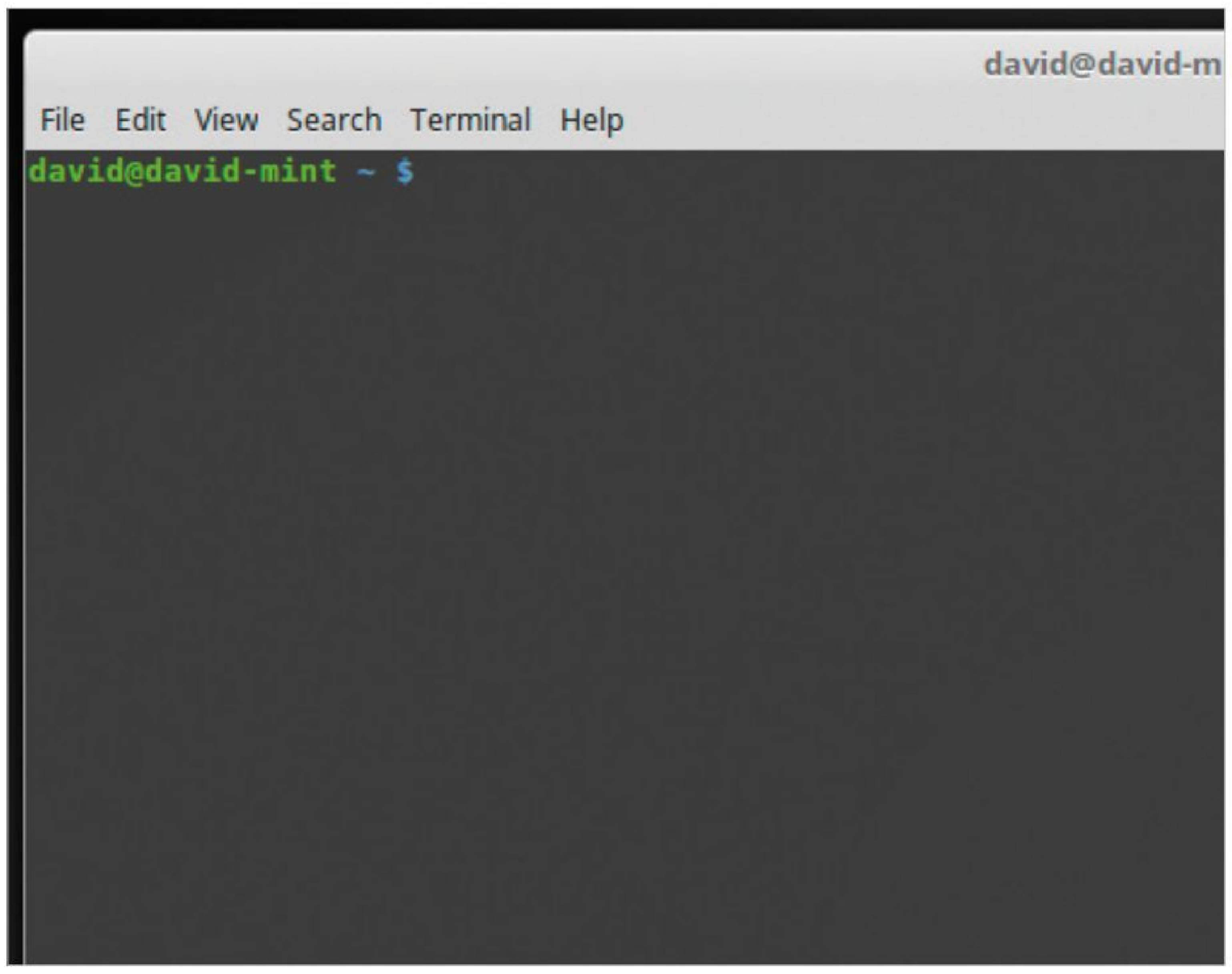
TAKING COMMAND

The command line, or Terminal, is an extremely powerful interface. Everything you can do on the desktop can be done within the Terminal. Let's start by seeing how it works.

STEP 1 The Terminal can be accessed by either clicking on the Terminal icon on the Panel, located between the Firefox and files icons or it can be launched by opening the Mint Menu; and selecting it from the left-hand quick launch strip.

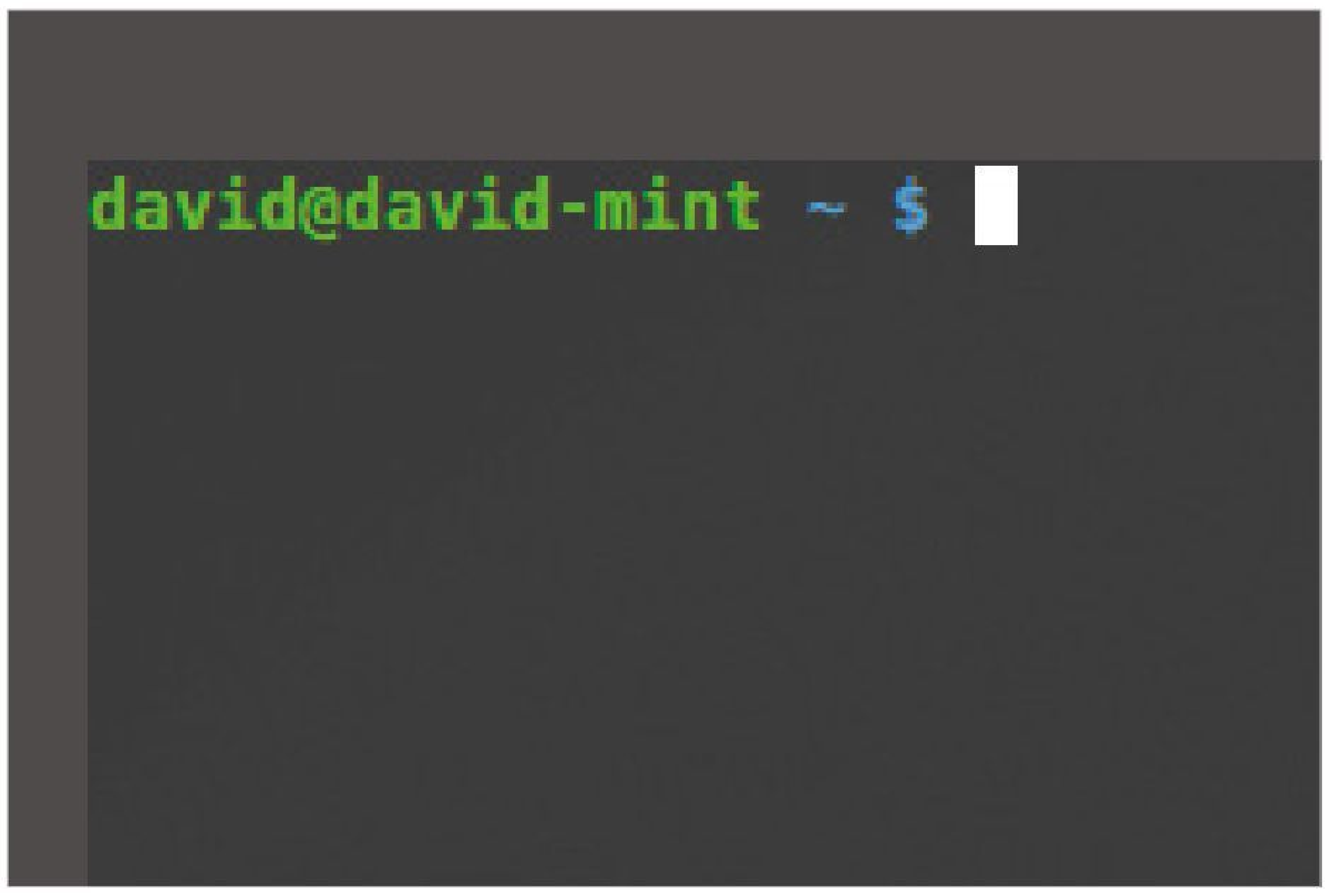

All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Accessibility
Account details
Applets
Archive Manager
Backgrounds
Backup Tool
Bluetooth
Brasero
Cairo-Dock

STEP 2 The Terminal will give you access to the Linux Mint Shell, called Bash; this gives you access to the underlying operating system. Everything in Mint, including the desktop and GUI is a module running from the command line.


david@david-m
File Edit View Search Terminal Help

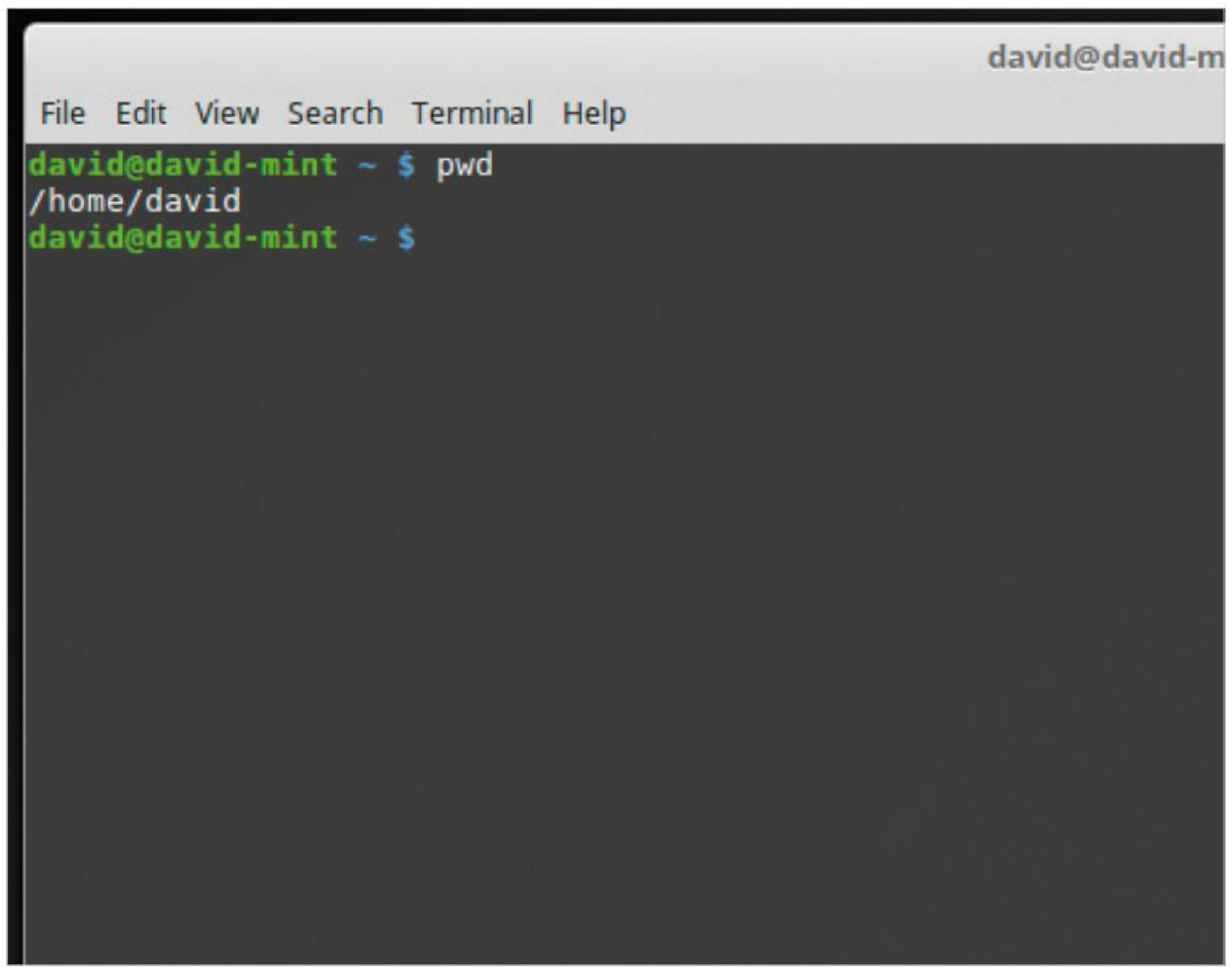
```
david@david-mint ~ $
```

STEP 3 What you currently see in the Terminal is your login name followed by the name of the computer; as you named it setup when you first installed Mint. The line then ends with the current folder name; at first this is just a tilde ~, which means your Home folder.



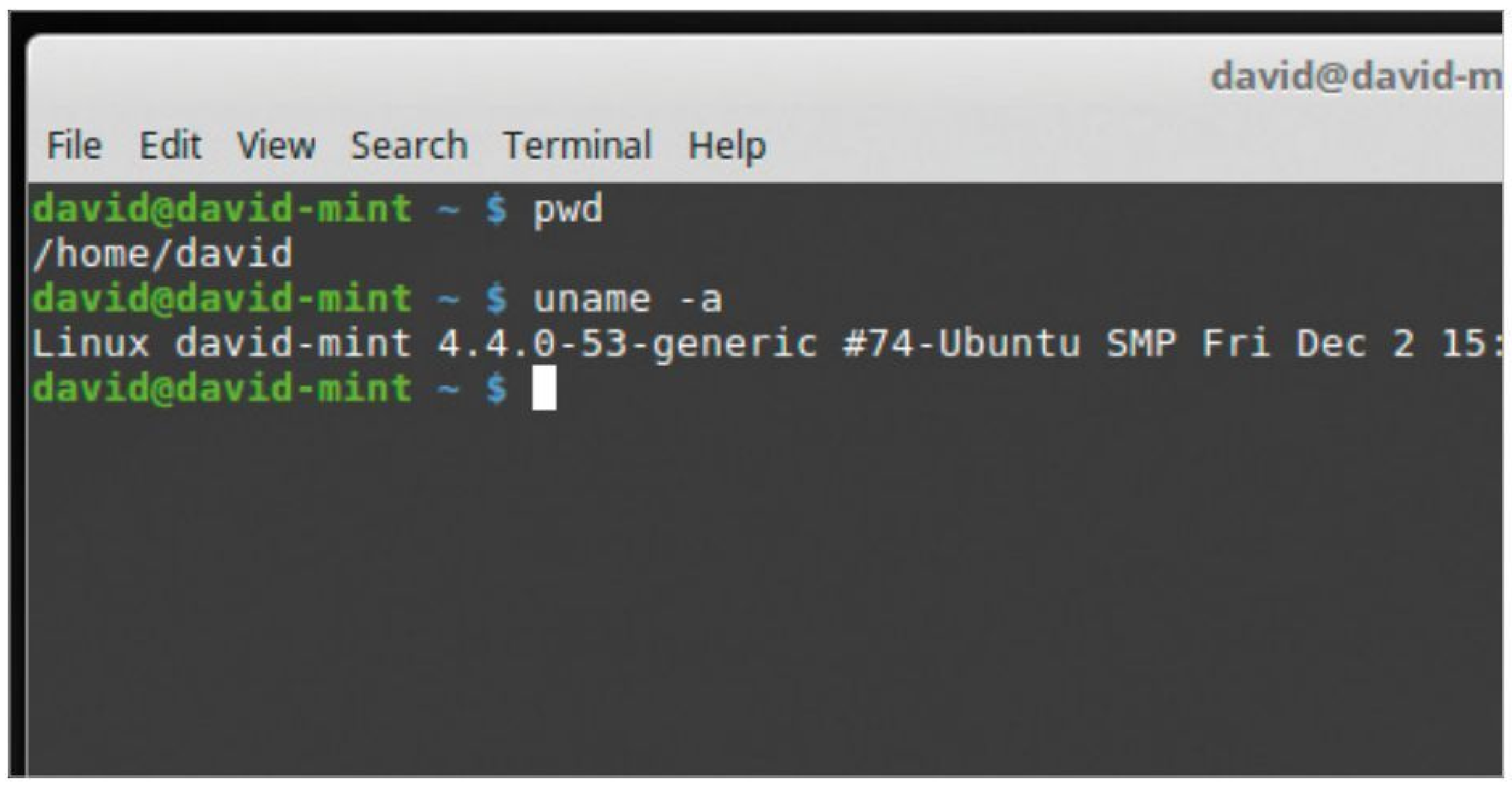
```
david@david-mint ~ $
```

STEP 4 The flashing cursor at the very end of the line is where your text-based commands will be entered. You can begin to experiment with a simple command, Print Working Directory (pwd), which will output to the screen the current folder you're in. Type: `pwd` and press Enter.


david@david-m
File Edit View Search Terminal Help

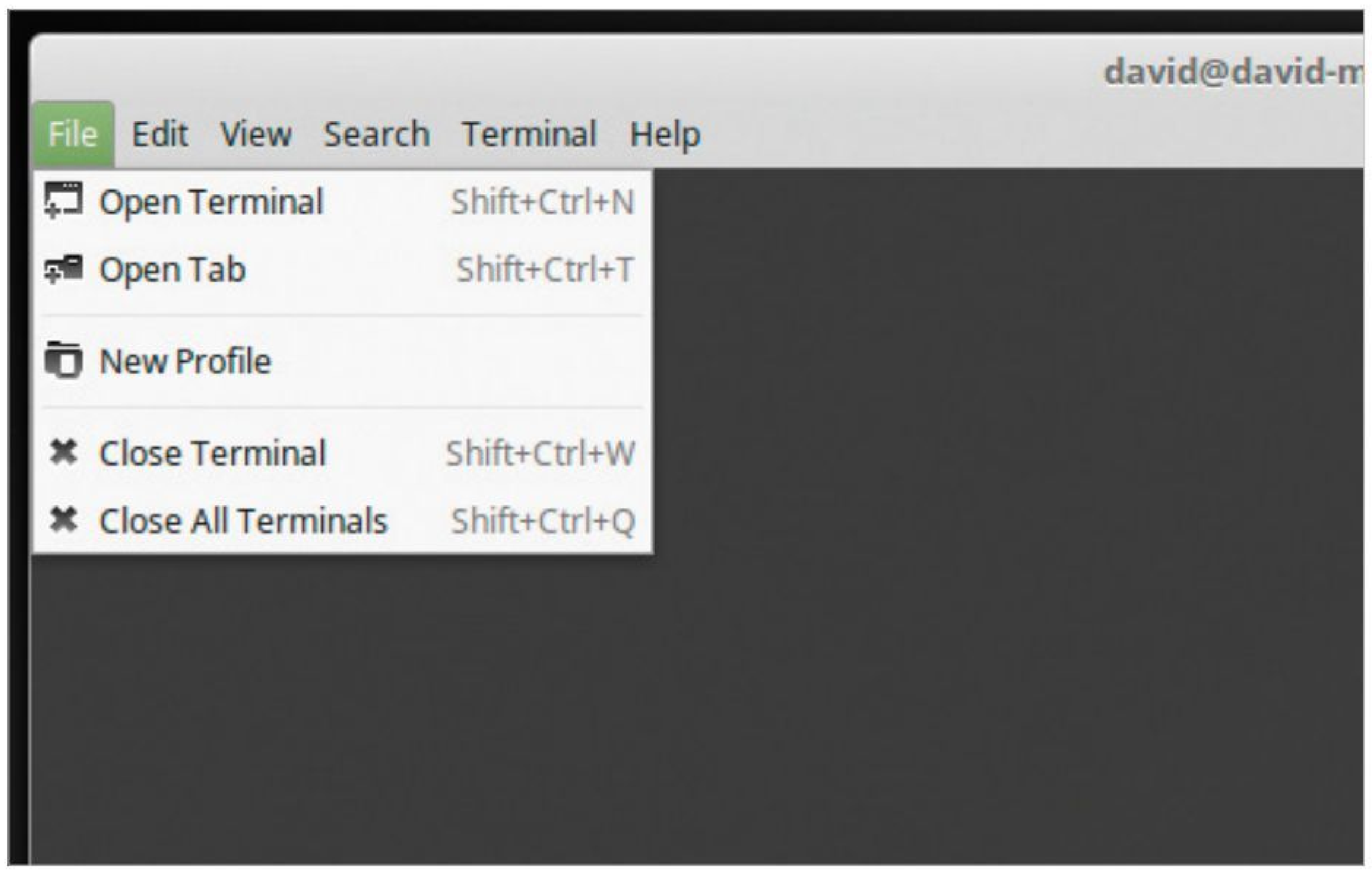
```
david@david-mint ~ $ pwd
/home/david
david@david-mint ~ $
```

STEP 5 All the commands you enter will work in the same manner. You enter the command, include any parameters to extend the use of the command and press Enter to execute the command line you've entered. Type into the Terminal: uname –a, and press Enter. This will display some system information regarding Mint.

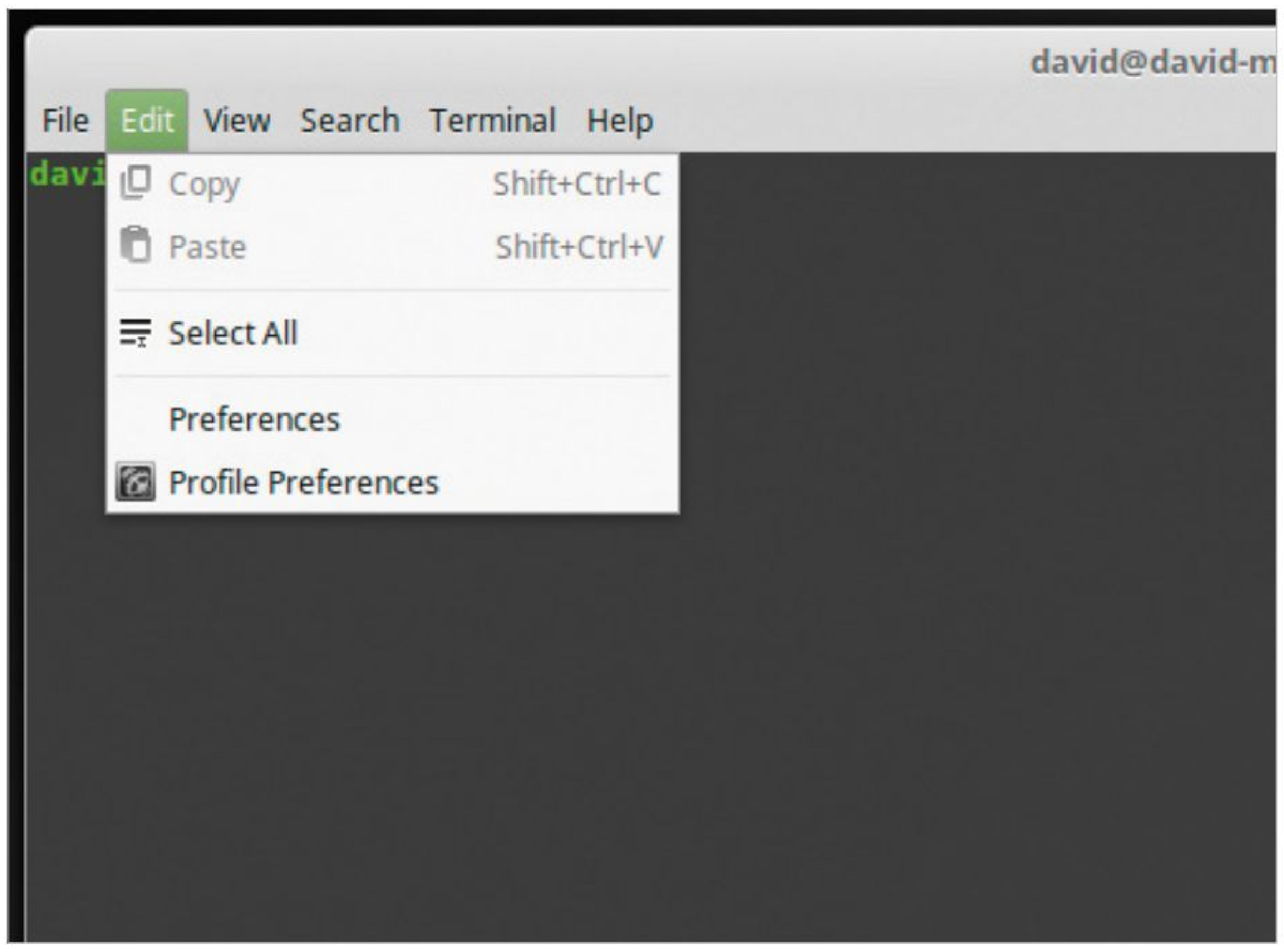

david@david-m
File Edit View Search Terminal Help

```
david@david-mint ~ $ pwd
/home/david
david@david-mint ~ $ uname -a
Linux david-mint 4.4.0-53-generic #74-Ubuntu SMP Fri Dec 2 15:
david@david-mint ~ $ 
```

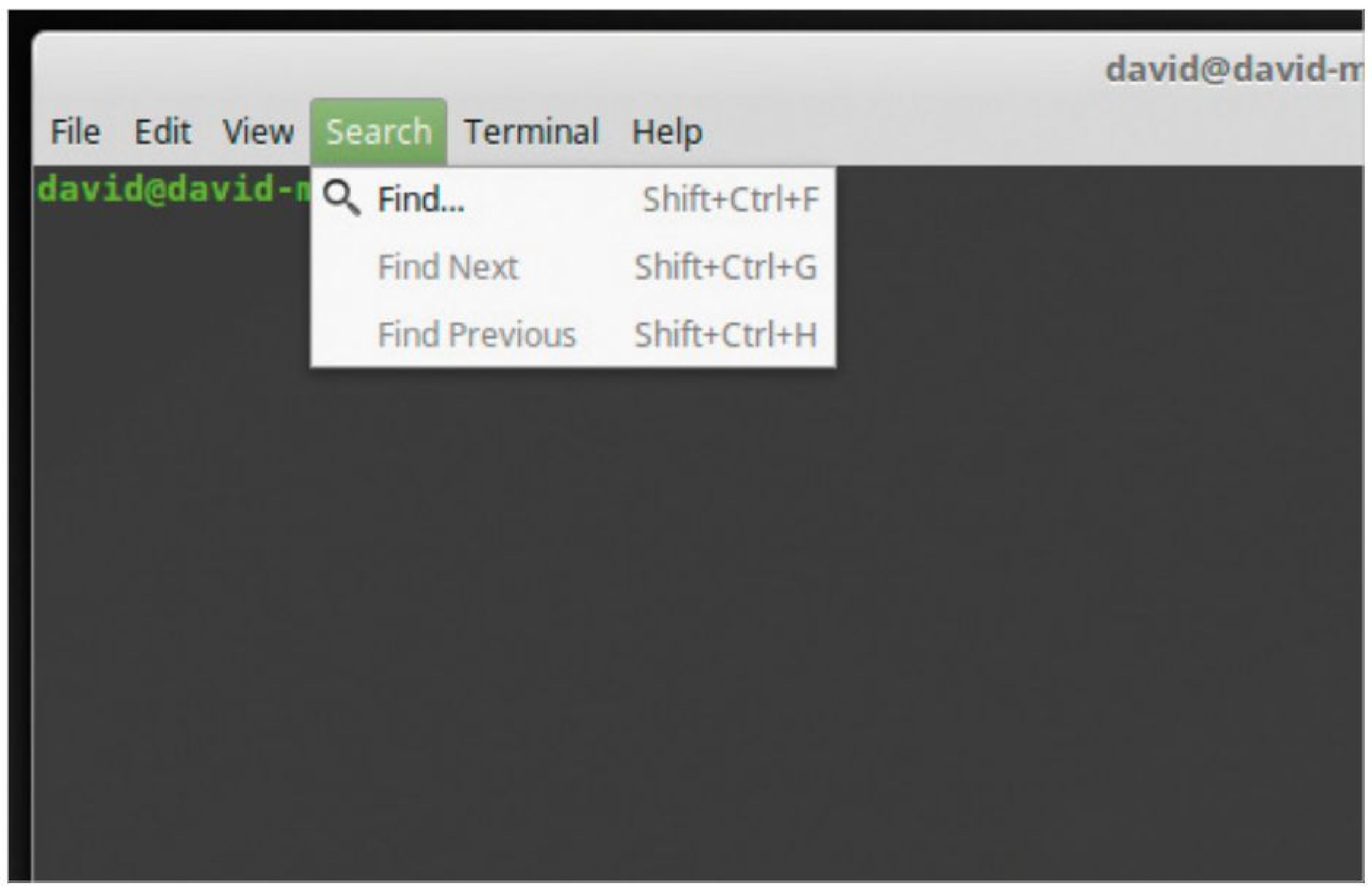
STEP 6 Before we get into entering commands, let's take a moment to see what menus the Terminal has to offer. The File menu option will allow you to open a new Terminal, create a new profile (where you can alter the size, colours and behaviour of the Terminal), add a new tab and close all current active Terminal sessions.


david@david-m
File Edit View Search Terminal Help
Open Terminal Shift+Ctrl+N
Open Tab Shift+Ctrl+T
New Profile
Close Terminal Shift+Ctrl+W
Close All Terminals Shift+Ctrl+Q

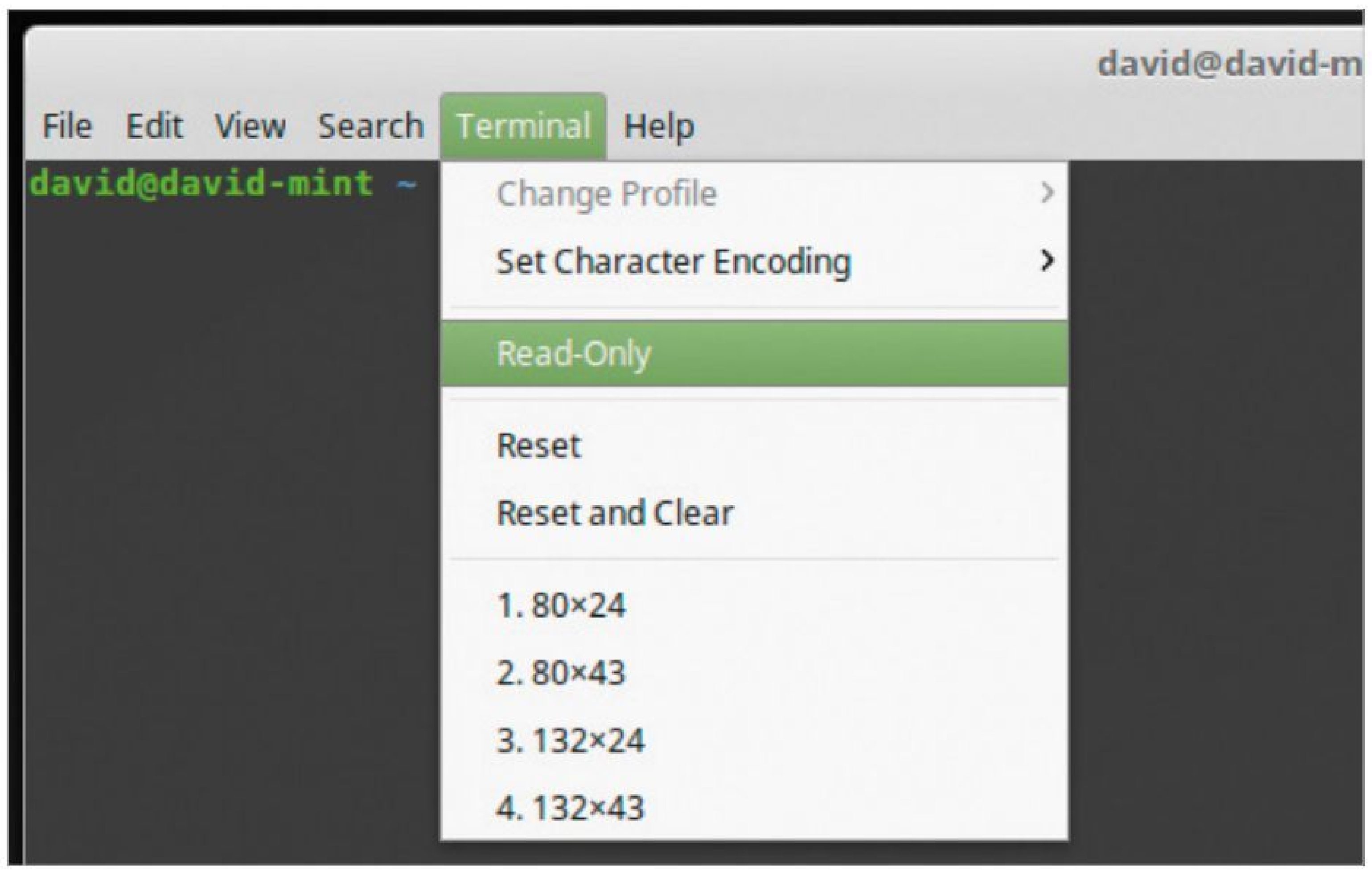
STEP 7 The Edit option lets you copy and paste commands to and from the Terminal and other sources; handy for when you want to copy a very long and complex command from a web page. It also allows you to edit the current profile preferences.


david@david-m
File Edit View Search Terminal Help
davi
Copy Shift+Ctrl+C
Paste Shift+Ctrl+V
Select All
Preferences
Profile Preferences

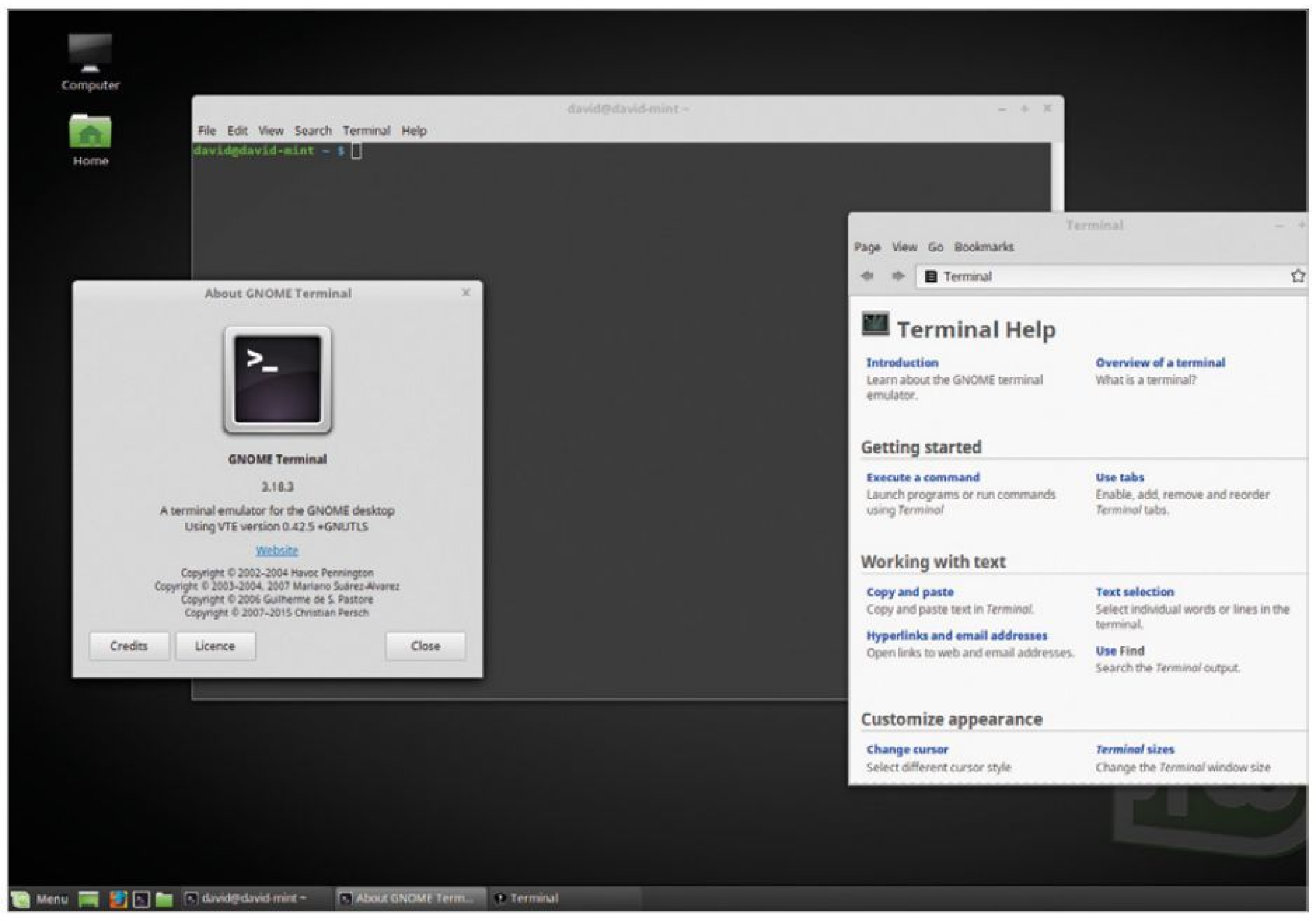
STEP 8 View and Search options let you alter the sizing of the Terminal window and of course search within the Terminal for any particular key words.


david@david-m
File Edit View Search Terminal Help
david@david-m
Find... Shift+Ctrl+F
Find Next Shift+Ctrl+G
Find Previous Shift+Ctrl+H

STEP 9 The Terminal entry extends the profile editing, sizing and allows you alter the character encoding. Interestingly, you can also set it to a Read Only mode, which will stop you from entering any commands into the Terminal; good for when you need to permanently display the Terminal contents.


david@david-m
File Edit View Search Terminal Help
david@david-mint ~
Change Profile
Set Character Encoding
Read-Only
Reset
Reset and Clear
1. 80×24
2. 80×43
3. 132×24
4. 132×43

STEP 10 Finally, the Help option displays the help contents and version number of the Terminal, or to be more precise, GNOME Terminal; although we'll simply refer to it as Terminal in future. The Contents are worth having a quick read through, to help familiarise yourself with how the Terminal works.


Computer
Home
david@david-mint ~
File Edit View Search Terminal Help
About GNOME Terminal
Credits
Licence
Close
Terminal
Page View Go Bookmarks
Terminal
Menu
david@david-mint ~
About GNOME Term...
Terminal

GNOME Terminal

3.18.3

A terminal emulator for the GNOME desktop
Using VTE version 0.42.5 +GNUTLS

Website

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Copyright © 2003-2004, 2007 Mariano Suárez-Alvarez
Copyright © 2006 Guilherme de S. Pastore
Copyright © 2007–2015 Christian Persch

Terminal Help

Introduction
Learn about the GNOME terminal emulator.

Overview of a terminal
What is a terminal?

Getting started

Execute a command
Launch programs or run commands using *Terminal*

Use tabs
Enable, add, remove and reorder *Terminal* tabs.

Working with text

Copy and paste
Copy and paste text in *Terminal*.

Hyperlinks and email addresses
Open links to web and email addresses.

Text selection
Select individual words or lines in the terminal.

Use Find
Search the *Terminal* output.

Customize appearance

Change cursor
Select different cursor style

Terminal sizes
Change the *Terminal* window size

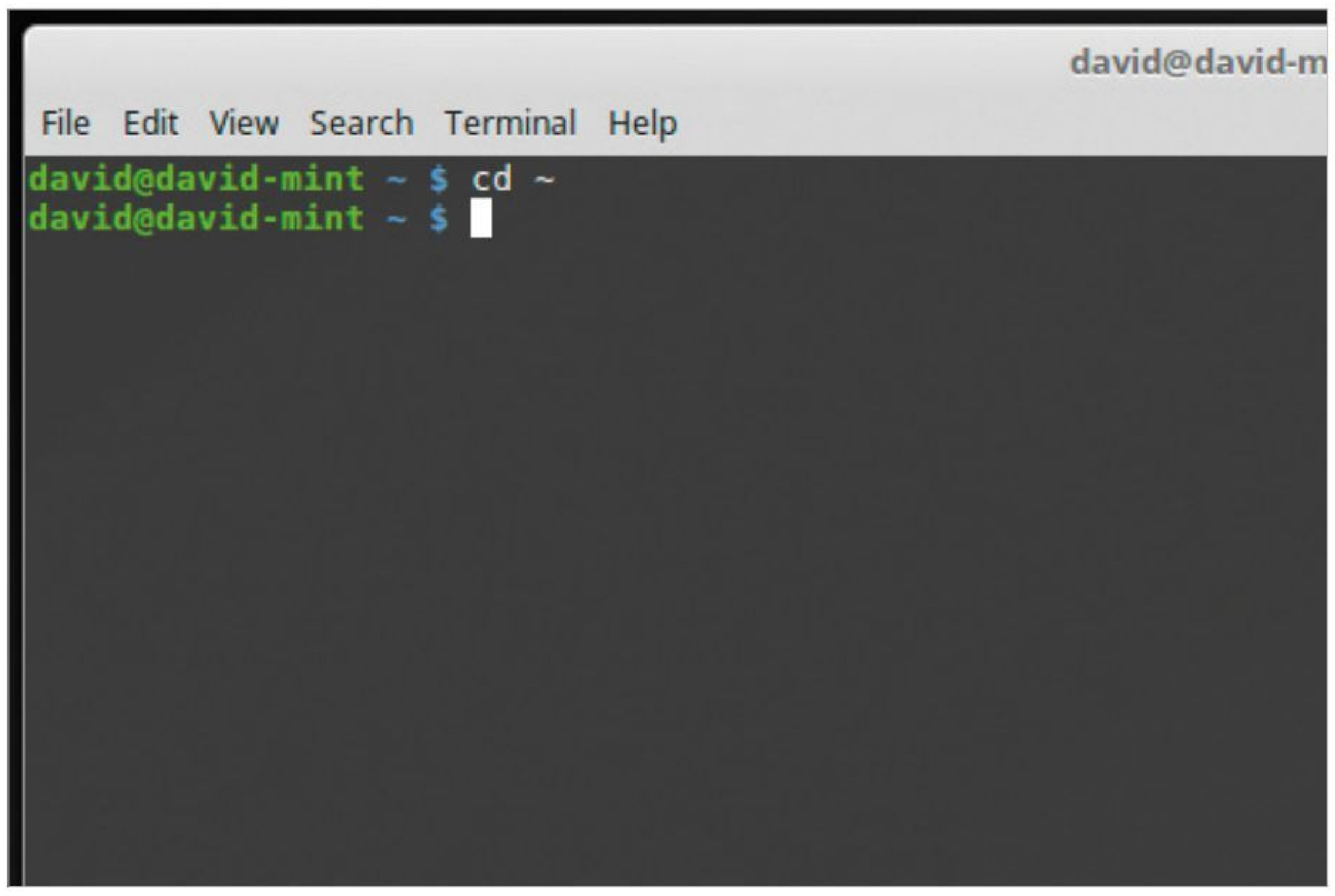
Creating a File Using the Terminal

Using the Terminal, you're able to create folders, files and even execute Linux Mint apps. In truth, if you didn't have the GUI at hand, you could still accomplish the same from the Terminal.

MORE TERMINAL WORK

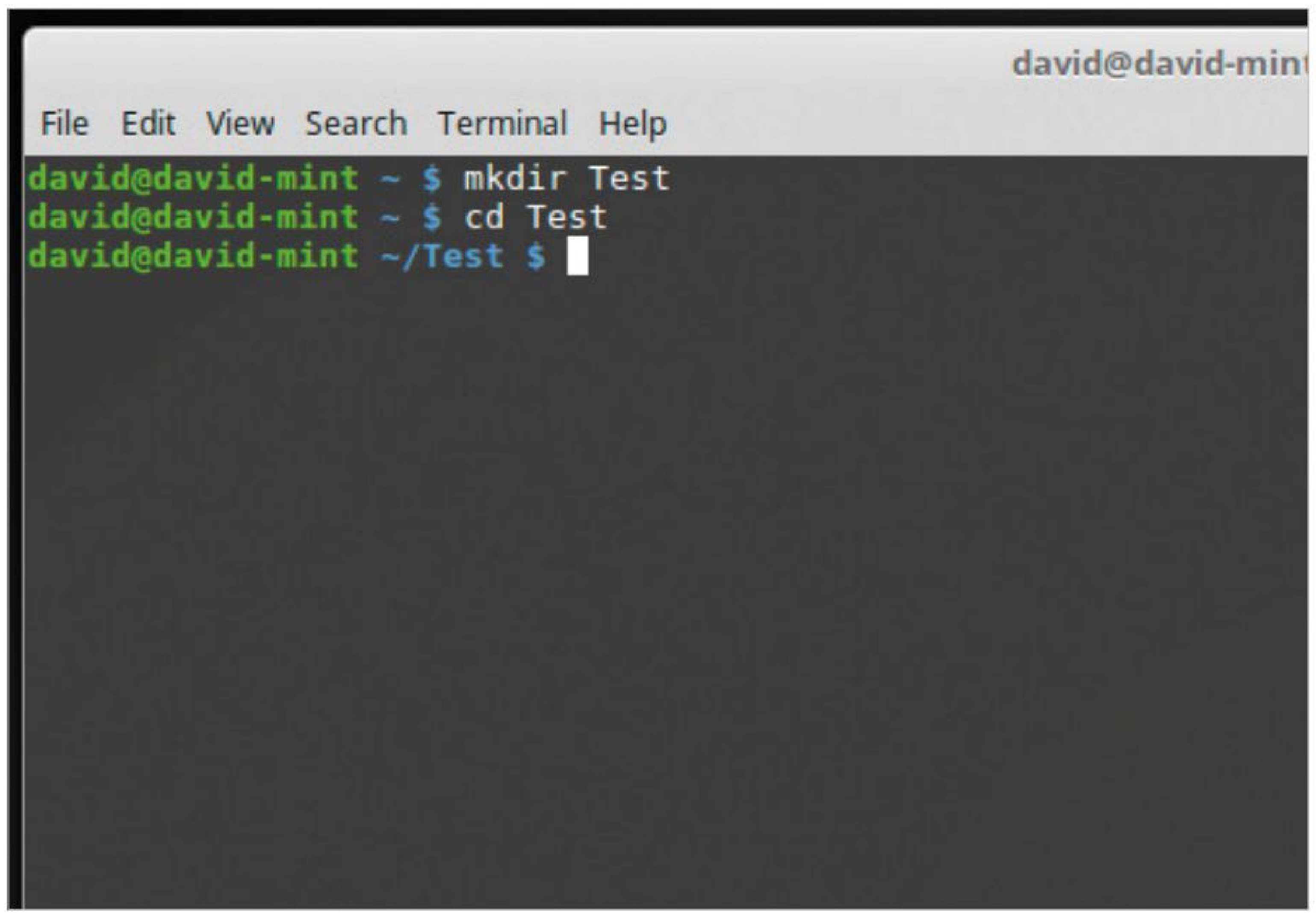
Creating content using the Terminal isn't quite as strenuous as it may first appear. Yes the Terminal can look a daunting place for the newcomer but once mastered it's really quite intuitive.

STEP 1 Open up the Terminal and make sure you're in the Home folder. If not use the `cd ~` command to return you to the Home folder from wherever you're currently located.


david@david-m
File Edit View Search Terminal Help

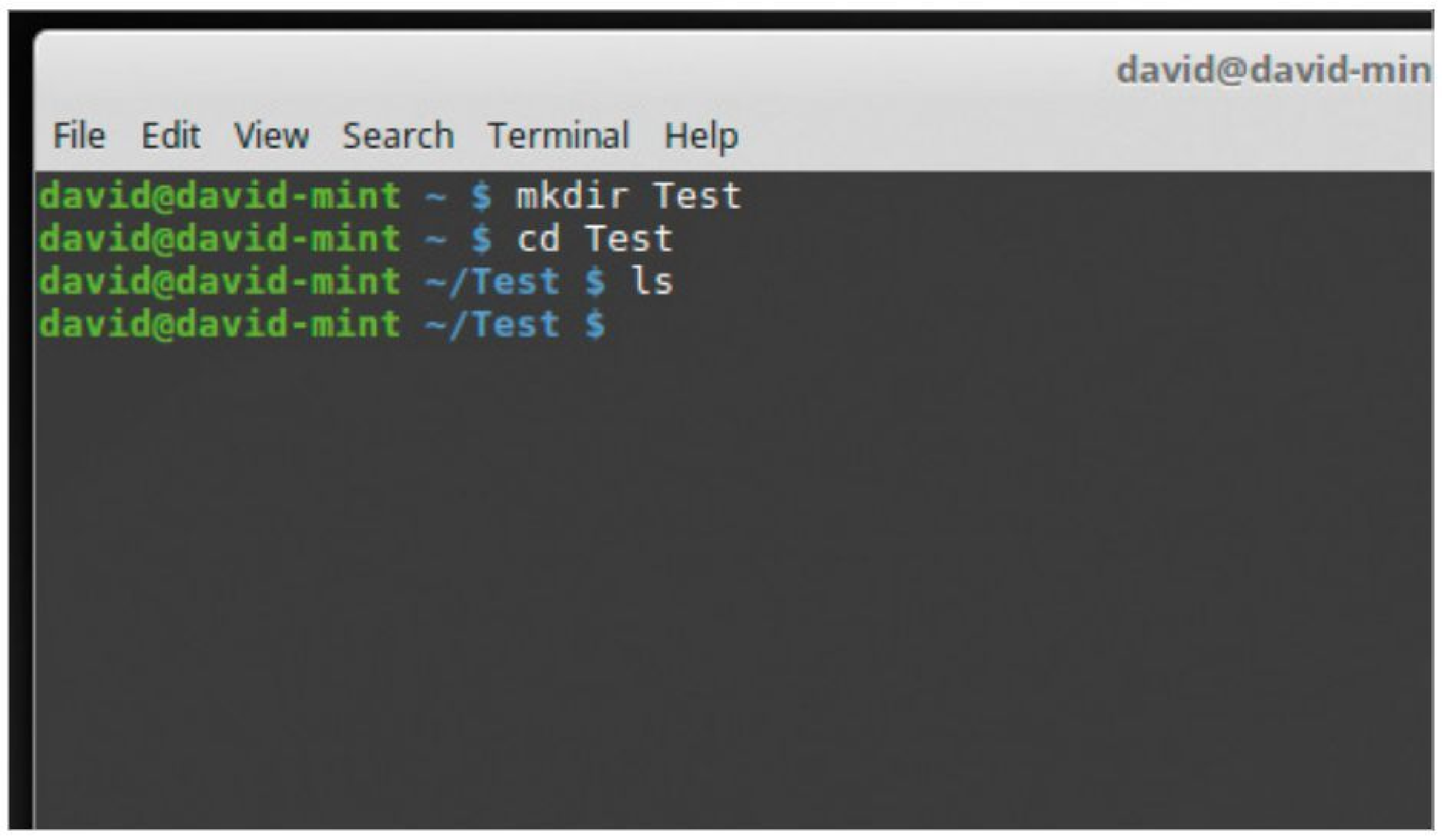
```
david@david-mint ~ $ cd ~
david@david-mint ~ $ 
```

STEP 2 Let's start by creating a new folder within Home, and call it Test. The command you need is `mkdir Test`. Press Enter to create the folder when you've typed in the command, then `cd Test` and press Enter. This will Change Directory (hence CD) to the newly created Test folder.


david@david-mint
File Edit View Search Terminal Help

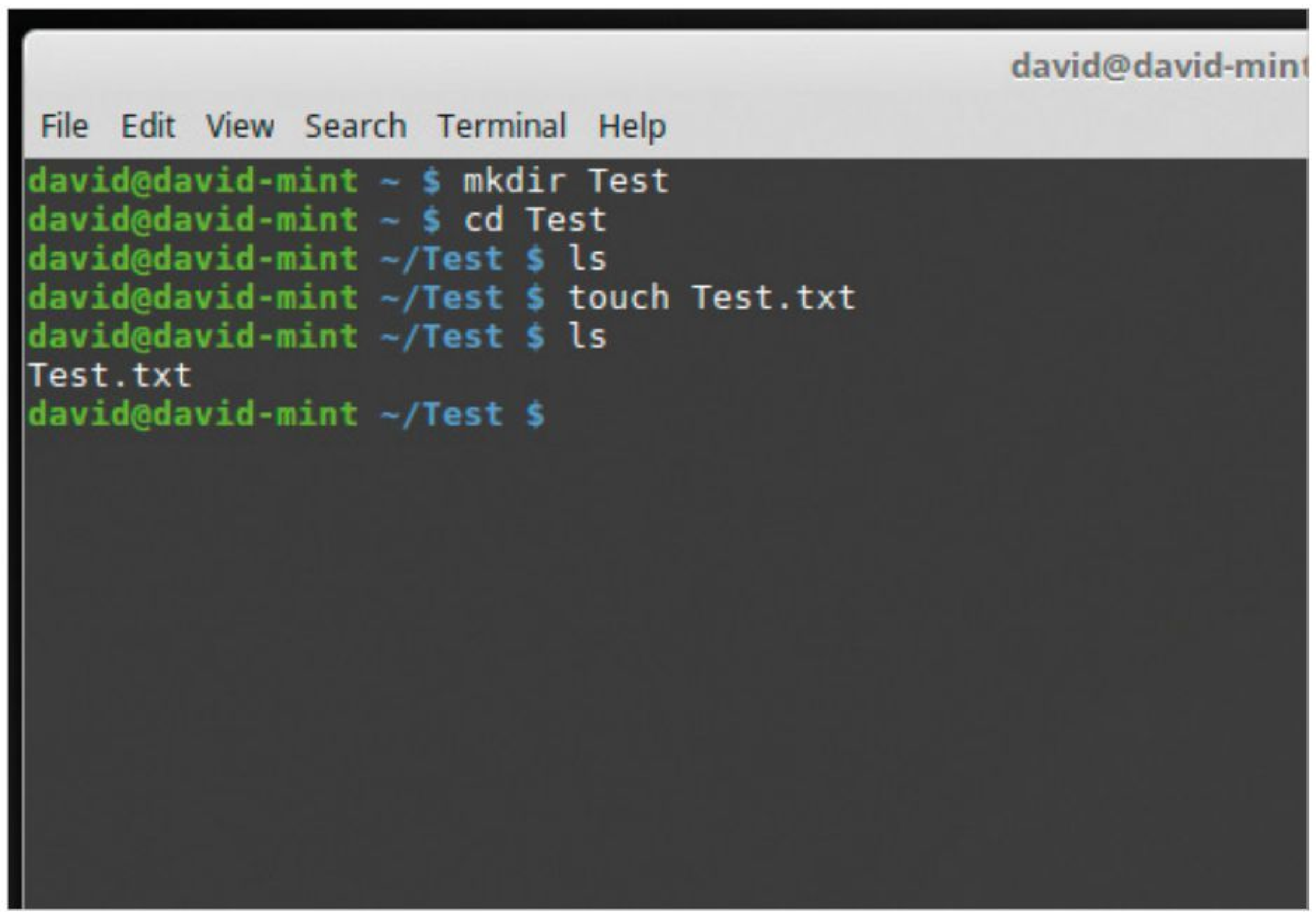
```
david@david-mint ~ $ mkdir Test
david@david-mint ~ $ cd Test
david@david-mint ~/Test $ 
```

STEP 3 Your command line should change to the Test folder and if you enter `ls` (List folder contents) there will be nothing within the folder, as you've just created it. The `mkdir` command is fairly self explanatory: Make Directory followed by the name of your choosing.


david@david-min
File Edit View Search Terminal Help

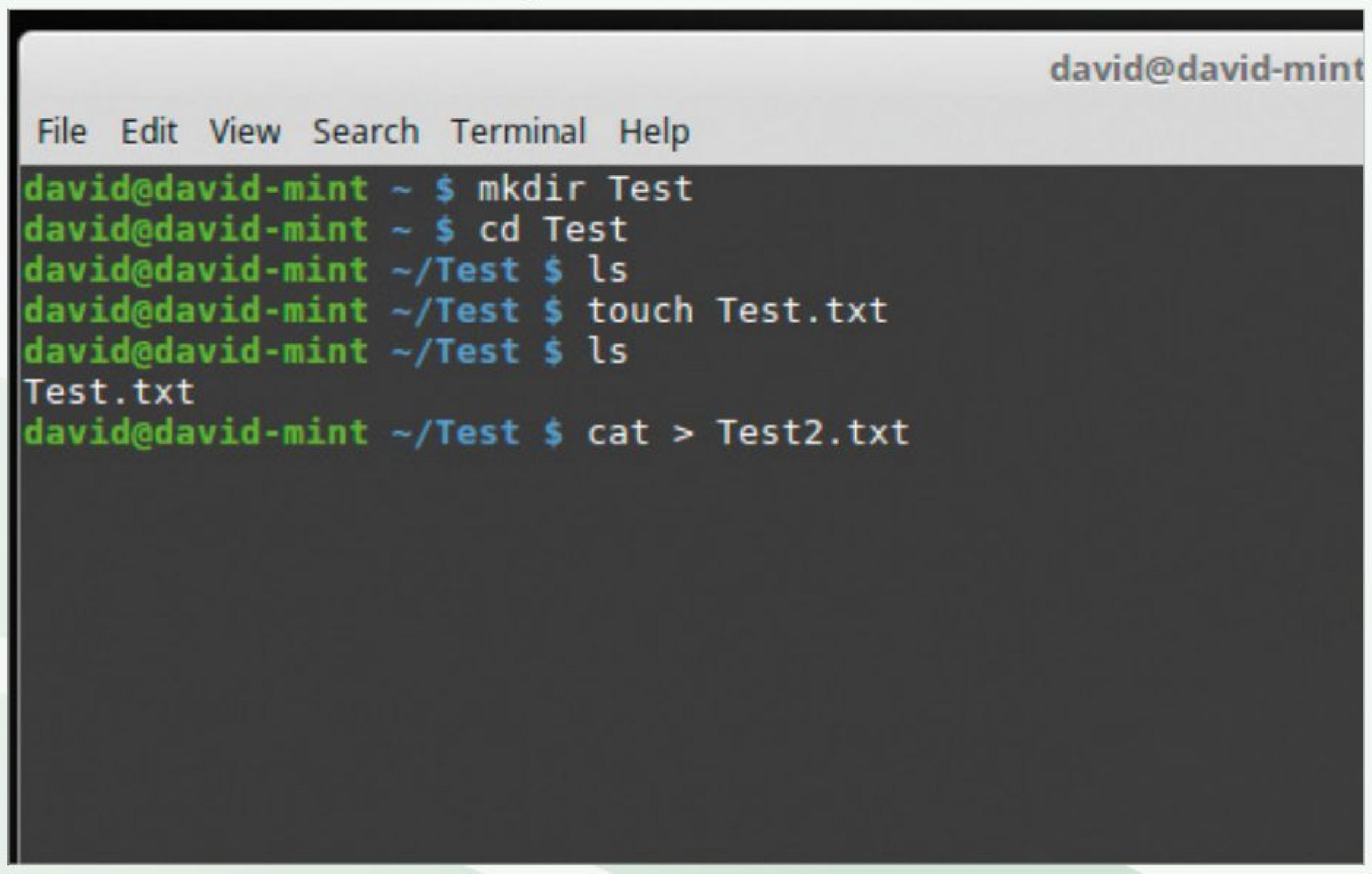
```
david@david-mint ~ $ mkdir Test
david@david-mint ~ $ cd Test
david@david-mint ~/Test $ ls
david@david-mint ~/Test $
```

STEP 4 To create an empty text file, called Test.txt, enter in the Terminal: `touch Test.txt`. You can then use `ls` to view the new file in the folder. Touch is a standard Linux command that allows the creation of files without the need to open a text editor, save the file, then close the editor.


david@david-mint
File Edit View Search Terminal Help

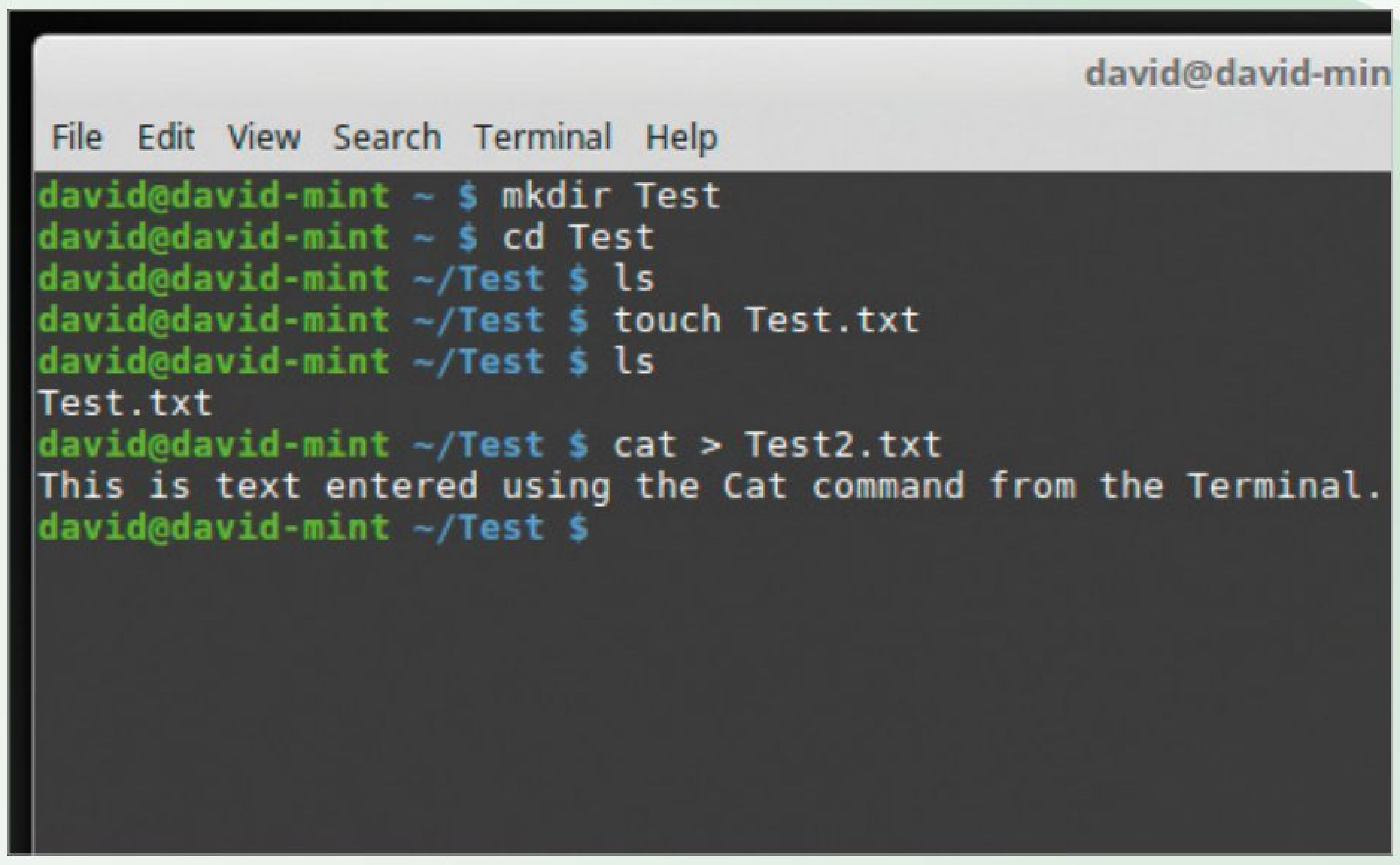
```
david@david-mint ~ $ mkdir Test
david@david-mint ~ $ cd Test
david@david-mint ~/Test $ ls
david@david-mint ~/Test $ touch Test.txt
david@david-mint ~/Test $ ls
Test.txt
david@david-mint ~/Test $
```

STEP 5 Let's say you now want to create a text file, and call it Test2.txt, complete with some content. To do so, enter: `cat > Test2.txt`. This will create the file Test2.txt and put the Terminal into an editing mode.


david@david-mint
File Edit View Search Terminal Help

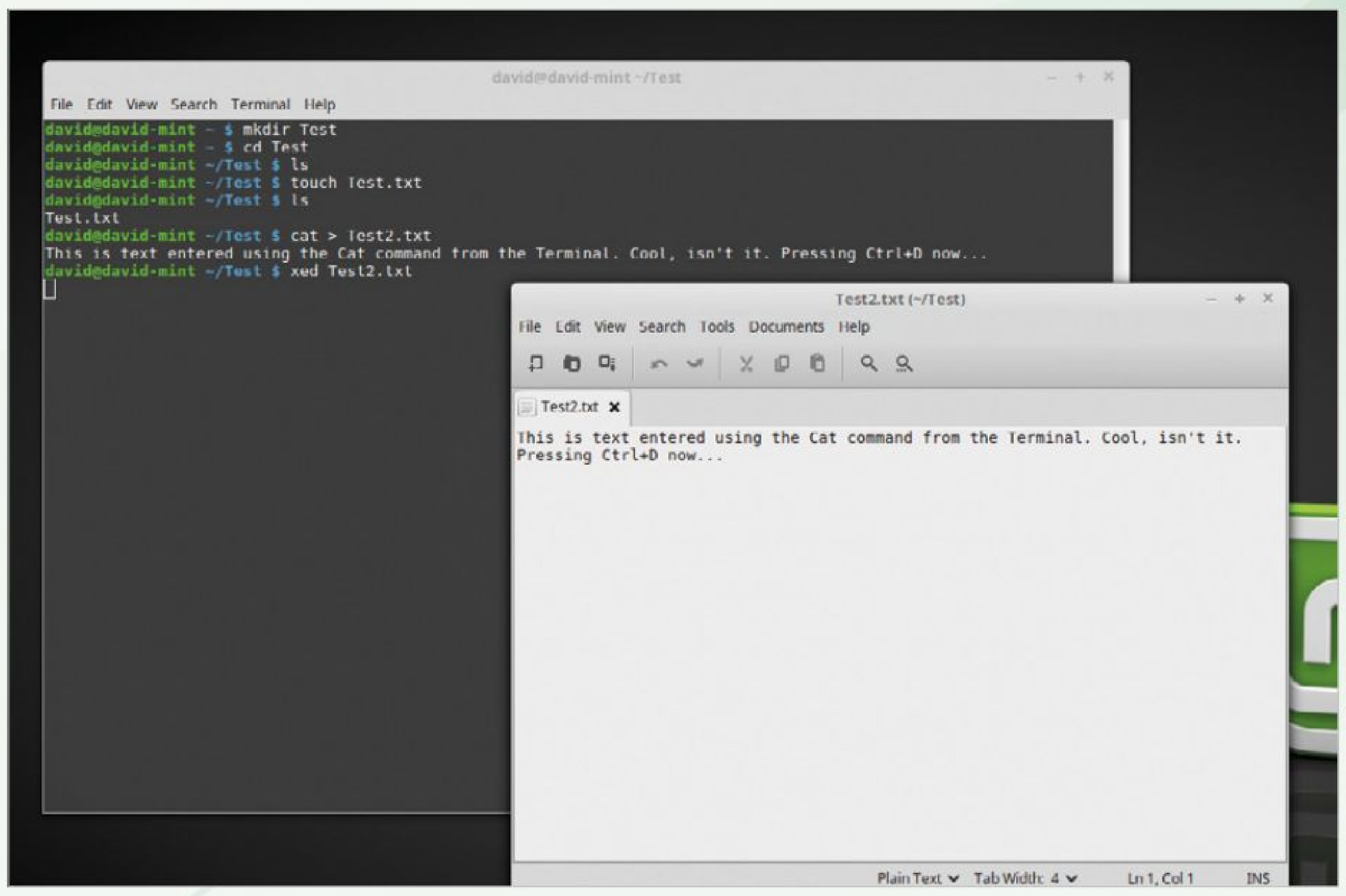
```
david@david-mint ~ $ mkdir Test
david@david-mint ~ $ cd Test
david@david-mint ~/Test $ ls
david@david-mint ~/Test $ touch Test.txt
david@david-mint ~/Test $ ls
Test.txt
david@david-mint ~/Test $ cat > Test2.txt
```

STEP 6 You can see that the cursor is flashing below the `cat > Test2.txt` command, without the usual prompt. This editing mode will allow you enter the text that the file will contain. Enter some text, then press Ctrl+D to exit and write the contents to the file.


david@david-min
File Edit View Search Terminal Help

```
david@david-mint ~ $ mkdir Test
david@david-mint ~ $ cd Test
david@david-mint ~/Test $ ls
david@david-mint ~/Test $ touch Test.txt
david@david-mint ~/Test $ ls
Test.txt
david@david-mint ~/Test $ cat > Test2.txt
This is text entered using the Cat command from the Terminal.
david@david-mint ~/Test $
```

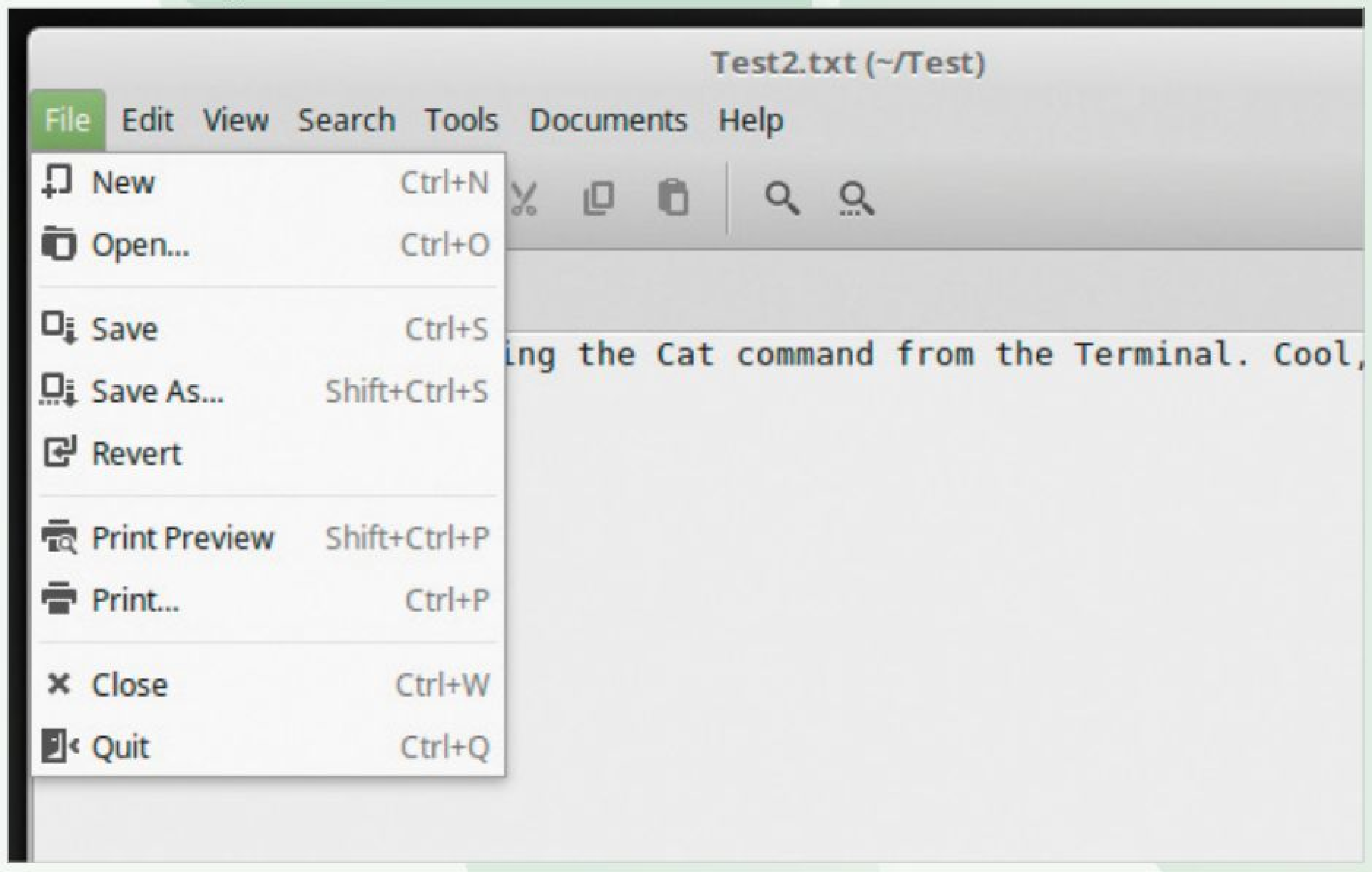
STEP 7 Of course you don't always have to use the Terminal to enter text into a file. Mint comes with a text editor called Xed that is similar to Windows Notepad. To view the previously created file in Xed, type into the Terminal: `xed Test2.txt`, and press Enter.


david@david-mint ~/Test
File Edit View Search Terminal Help
Test2.txt (~/Test)
File Edit View Search Tools Documents Help
Test2.txt
Plain Text
Tab Width: 4
Ln 1, Col 1
INS

```
david@david-mint ~ $ mkdir Test
david@david-mint ~ $ cd Test
david@david-mint ~/Test $ ls
david@david-mint ~/Test $ touch Test.txt
david@david-mint ~/Test $ ls
Test.txt
david@david-mint ~/Test $ cat > Test2.txt
This is text entered using the Cat command from the Terminal. Cool, isn't it. Pressing Ctrl+D now...
david@david-mint ~/Test $ xed Test2.txt
```

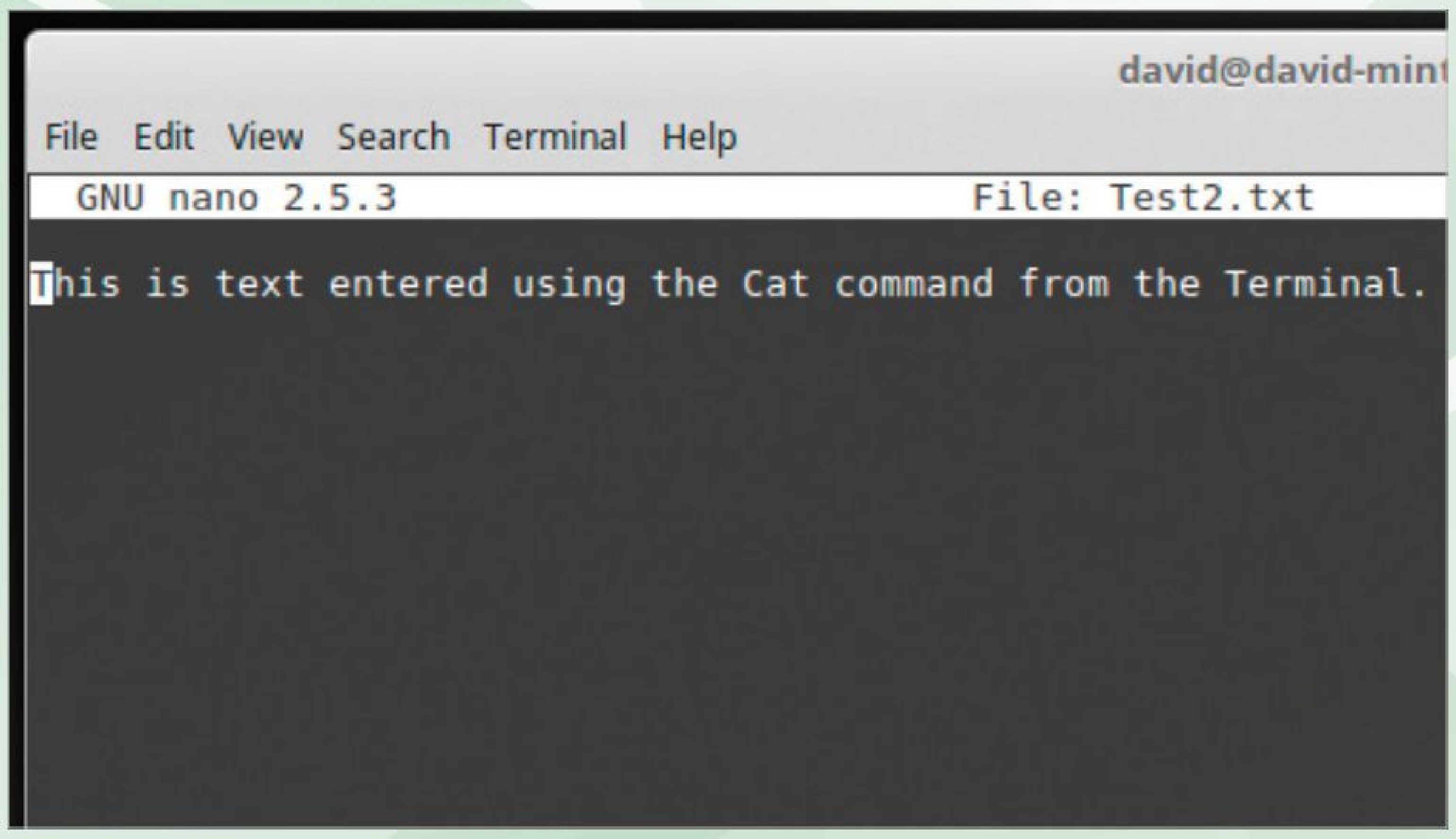
```
This is text entered using the Cat command from the Terminal. Cool, isn't it.
Pressing Ctrl+D now...
```

STEP 8 Xed is a GUI app and you can enter text and save the file, or any file, accordingly by using the app's main window, and the File > Save, or File > Save As functions from its top menu bar options.


Test2.txt (~/Test)
File Edit View Search Tools Documents Help
New Ctrl+N
Open... Ctrl+O
Save Ctrl+S
Save As... Shift+Ctrl+S
Revert
Print Preview Shift+Ctrl+P
Print... Ctrl+P
Close Ctrl+W
Quit Ctrl+Q

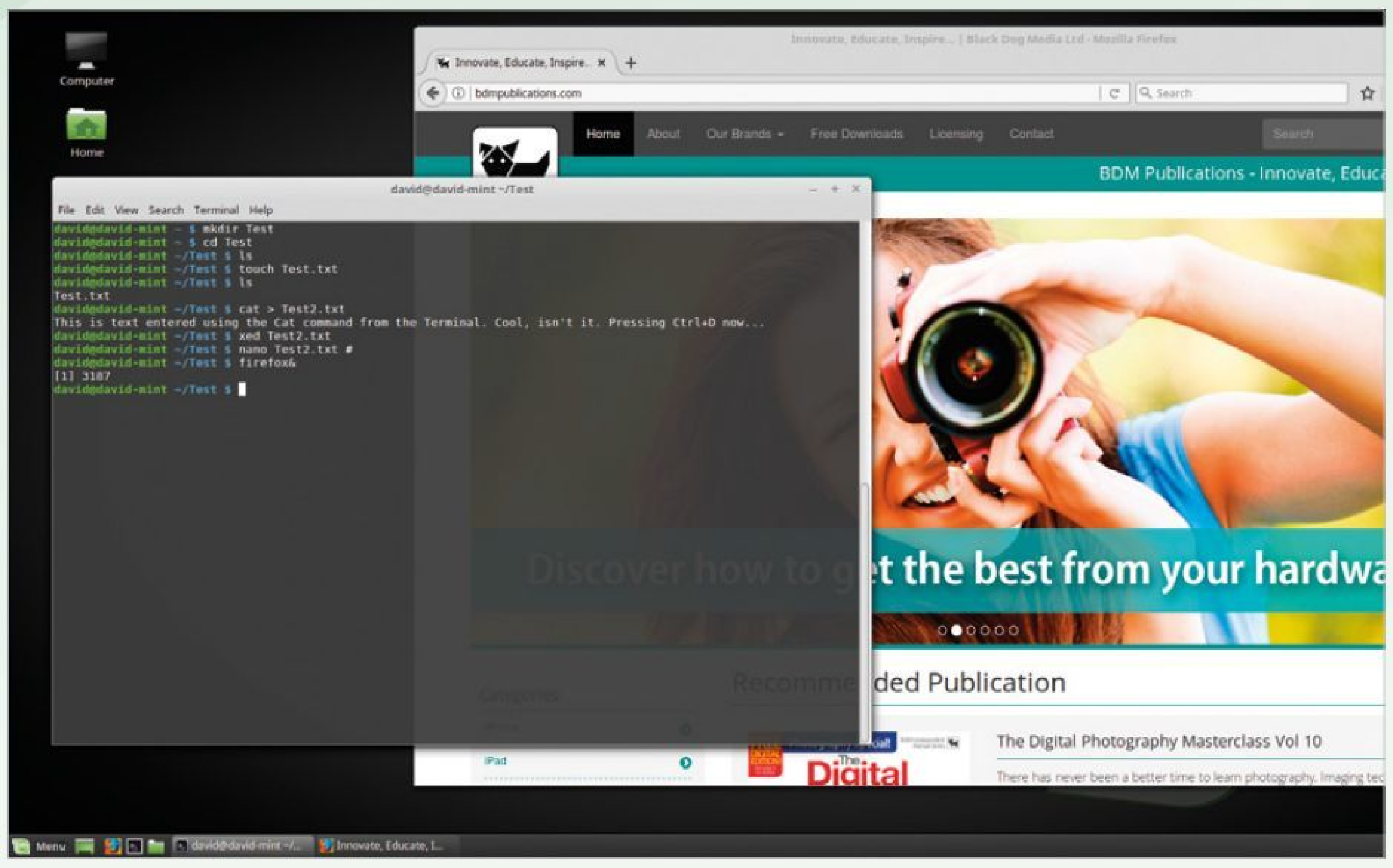
```
ing the Cat command from the Terminal. Cool,
```

STEP 9 However, if you prefer to remain working in the Terminal to edit, save or create files, you can use Nano. Nano is a simple Terminal-based text editor. To try it with the example, enter: `nano Test2.txt`. There's a menu along the bottom of the screen. To exit and save any content in Nano, press Ctrl+X and follow the on-screen instructions.


david@david-mint
File Edit View Search Terminal Help

```
  GNU nano 2.5.3                               File: Test2.txt

This is text entered using the Cat command from the Terminal.
```

STEP 10 You've used the Terminal to launch a Mint app, Xed, but any app can be launched from within the Terminal. For example, try: `firefox` and press Enter. Close Firefox to return to the Terminal. Providing you know the name of the app, it can run from the Terminal. Additionally, entering: `firefox&` opens Firefox *and* still lets you use the Terminal.


Computer
Home
Innovate, Educate, Inspire...
bdmpublications.com
Home
About
Our Brands
Free Downloads
Licensing
Contact
BDM Publications - Innovate, Educ
Discover how to get the best from your hardwa
Recommended Publication
The Digital Photography Masterclass Vol 10
Digital
david@david-mint ~/Test
File Edit View Search Terminal Help

```
david@david-mint ~ $ mkdir Test
david@david-mint ~ $ cd Test
david@david-mint ~/Test $ ls
david@david-mint ~/Test $ touch Test.txt
david@david-mint ~/Test $ ls
Test.txt
david@david-mint ~/Test $ cat > Test2.txt
This is text entered using the Cat command from the Terminal. Cool, isn't it. Pressing Ctrl+D now...
david@david-mint ~/Test $ xed Test2.txt
david@david-mint ~/Test $ nano Test2.txt #
david@david-mint ~/Test $ firefox&
[1] 3187
david@david-mint ~/Test $
```

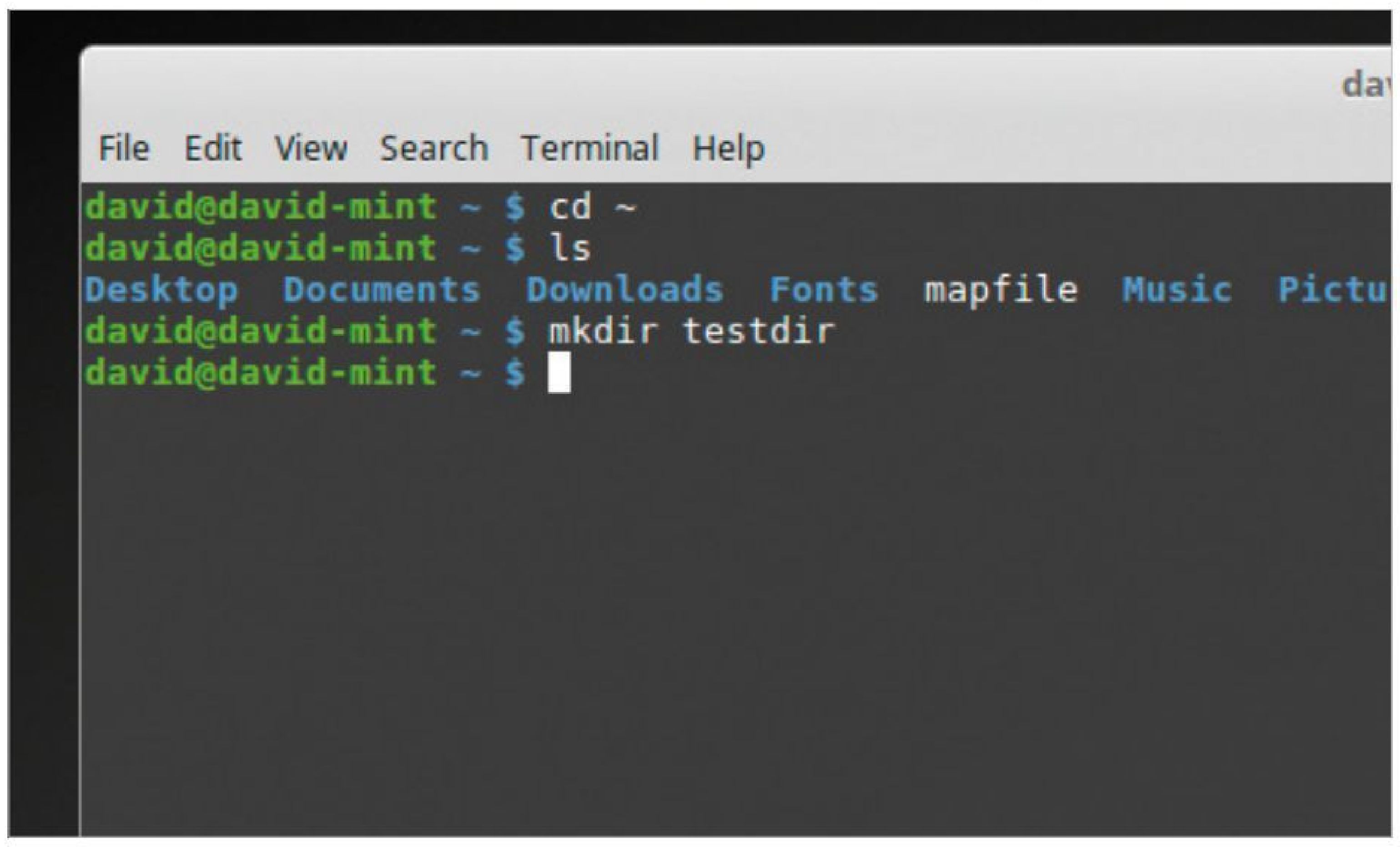
Creating and Removing Directories

As with creating files in the Terminal, you can also create and delete directories, or folders if you prefer. Directories form the structure of your file system, without logical directories the filing system would be in utter chaos.

MANAGING FOLDERS

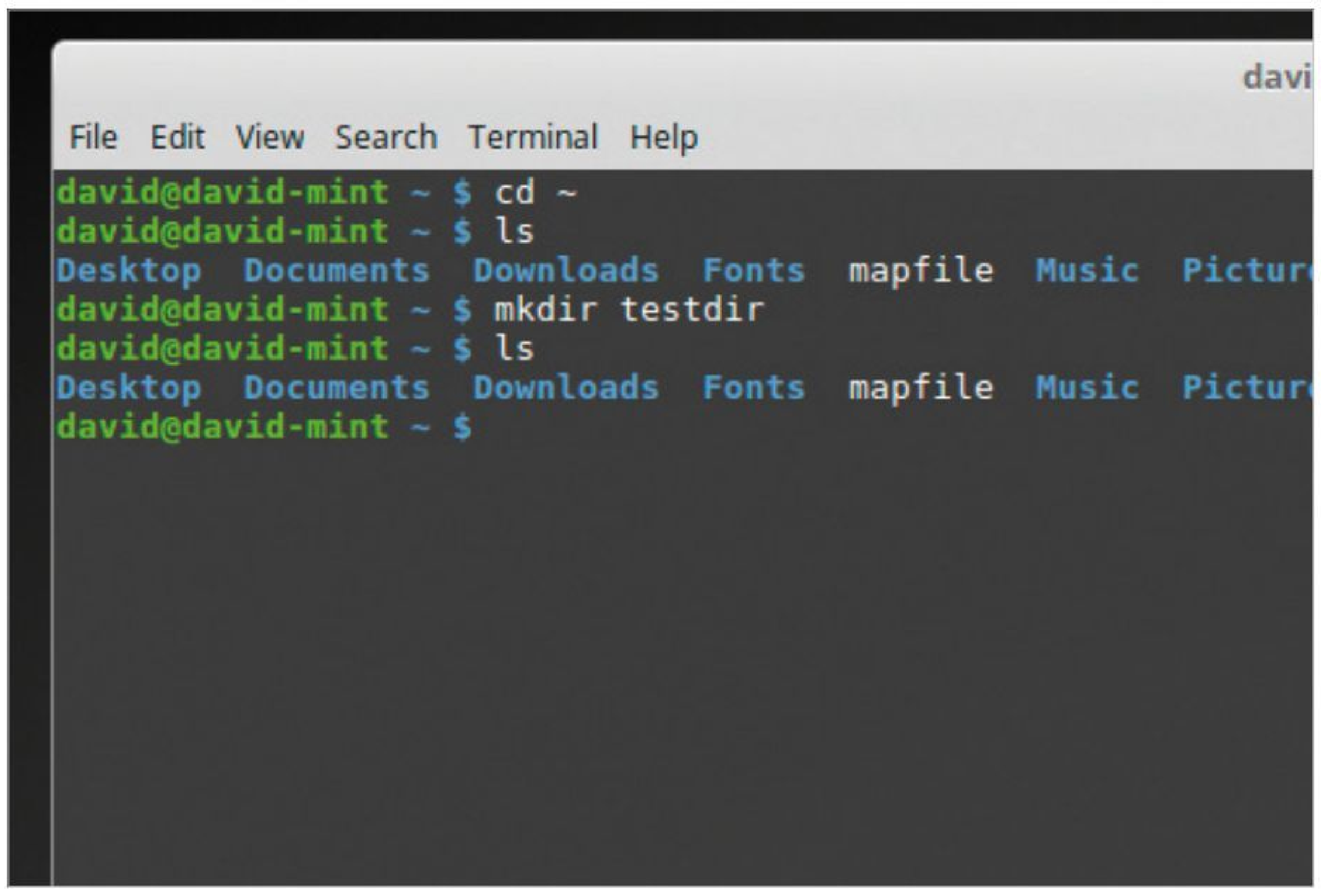
Learning how to create and delete folders in the Terminal is an important Mint, and indeed Linux, skill to master. Here's the basics for you to try out.

STEP 1 With the Terminal open enter `cd ~` to make sure you're in your own Home directory. Now enter `ls` to view the current folders you have housed in the Home directory. Notice that folders are labelled in Mint in cyan (light blue). Let's start by creating a new directory. Enter: `mkdir testdir`.



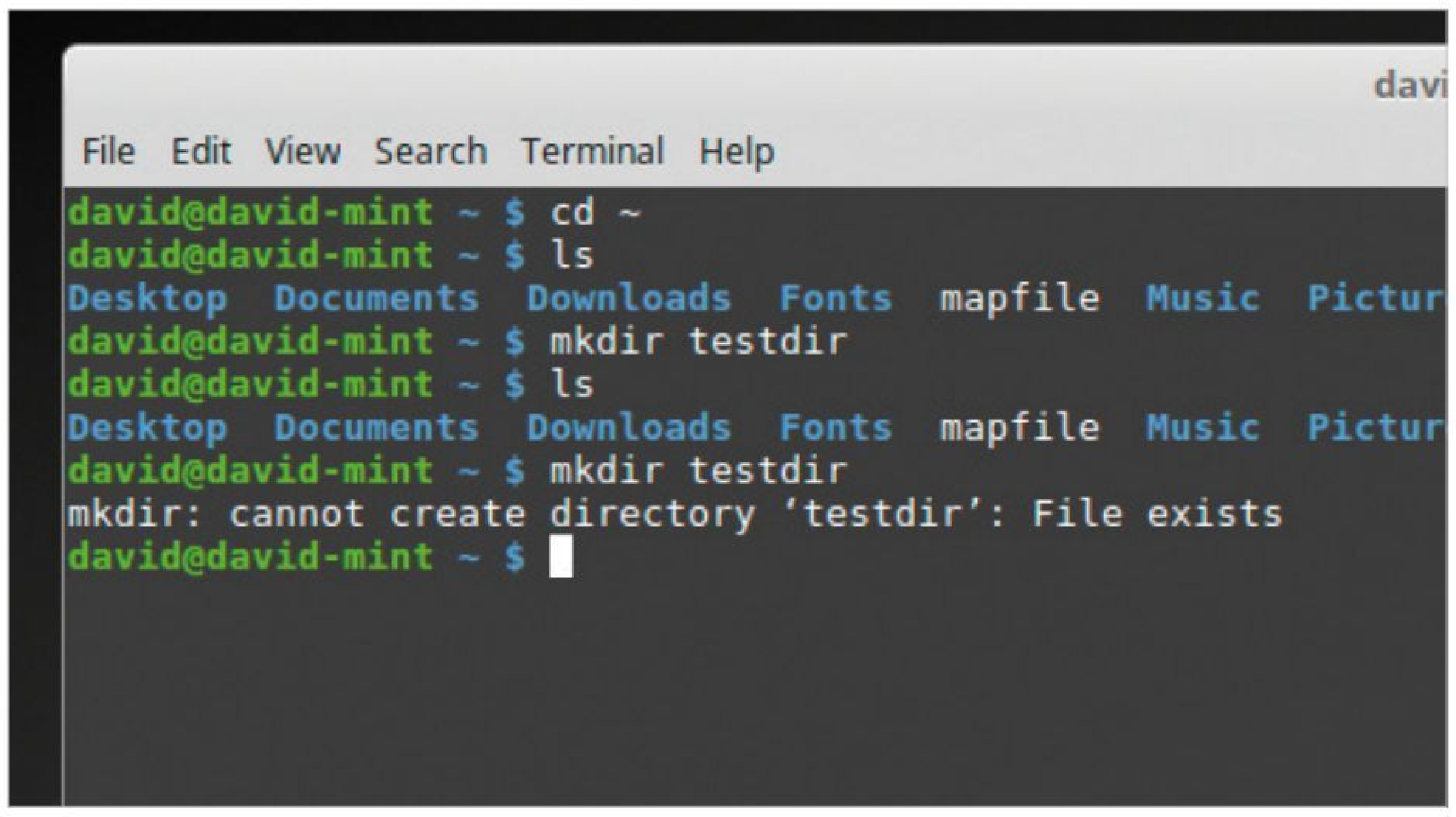
```
david@david-mint ~ $ cd ~
david@david-mint ~ $ ls
Desktop  Documents  Downloads  Fonts  mapfile  Music  Pictu
david@david-mint ~ $ mkdir testdir
david@david-mint ~ $ 
```

STEP 2 If you now enter `ls` again, you can see that the new directory, testdir, has been created alongside the other directories in the Home area. Obviously the command `mkdir` is what creates the directory and no doubt you've already guessed it stands for Make Directory.



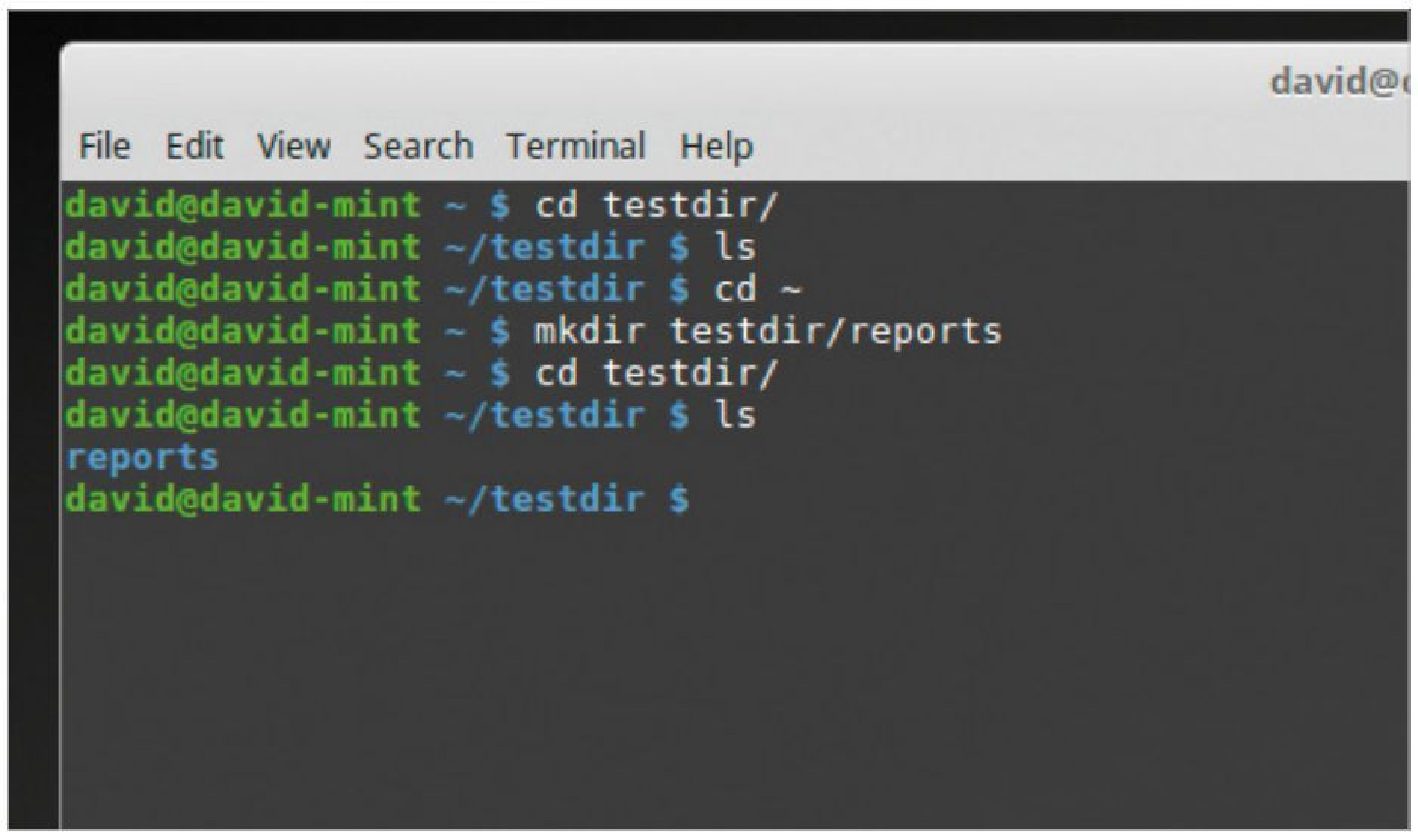
```
david@david-mint ~ $ cd ~
david@david-mint ~ $ ls
Desktop  Documents  Downloads  Fonts  mapfile  Music  Picture
david@david-mint ~ $ mkdir testdir
david@david-mint ~ $ ls
Desktop  Documents  Downloads  Fonts  mapfile  Music  Picture
david@david-mint ~ $
```

STEP 3 If you enter the command again: `mkdir testdir`, you receive a message stating: `mkdir: cannot create directory 'testdir': File exists`. It goes without saying then, that you're only able to have one uniquely named directory within the current directory. However, as Linux is case-sensitive, you can have Testdir, TestDir, testDir and so on.



```
david@david-mint ~ $ cd ~
david@david-mint ~ $ ls
Desktop  Documents  Downloads  Fonts  mapfile  Music  Pictur
david@david-mint ~ $ mkdir testdir
david@david-mint ~ $ ls
Desktop  Documents  Downloads  Fonts  mapfile  Music  Pictur
david@david-mint ~ $ mkdir testdir
mkdir: cannot create directory 'testdir': File exists
david@david-mint ~ $ 
```

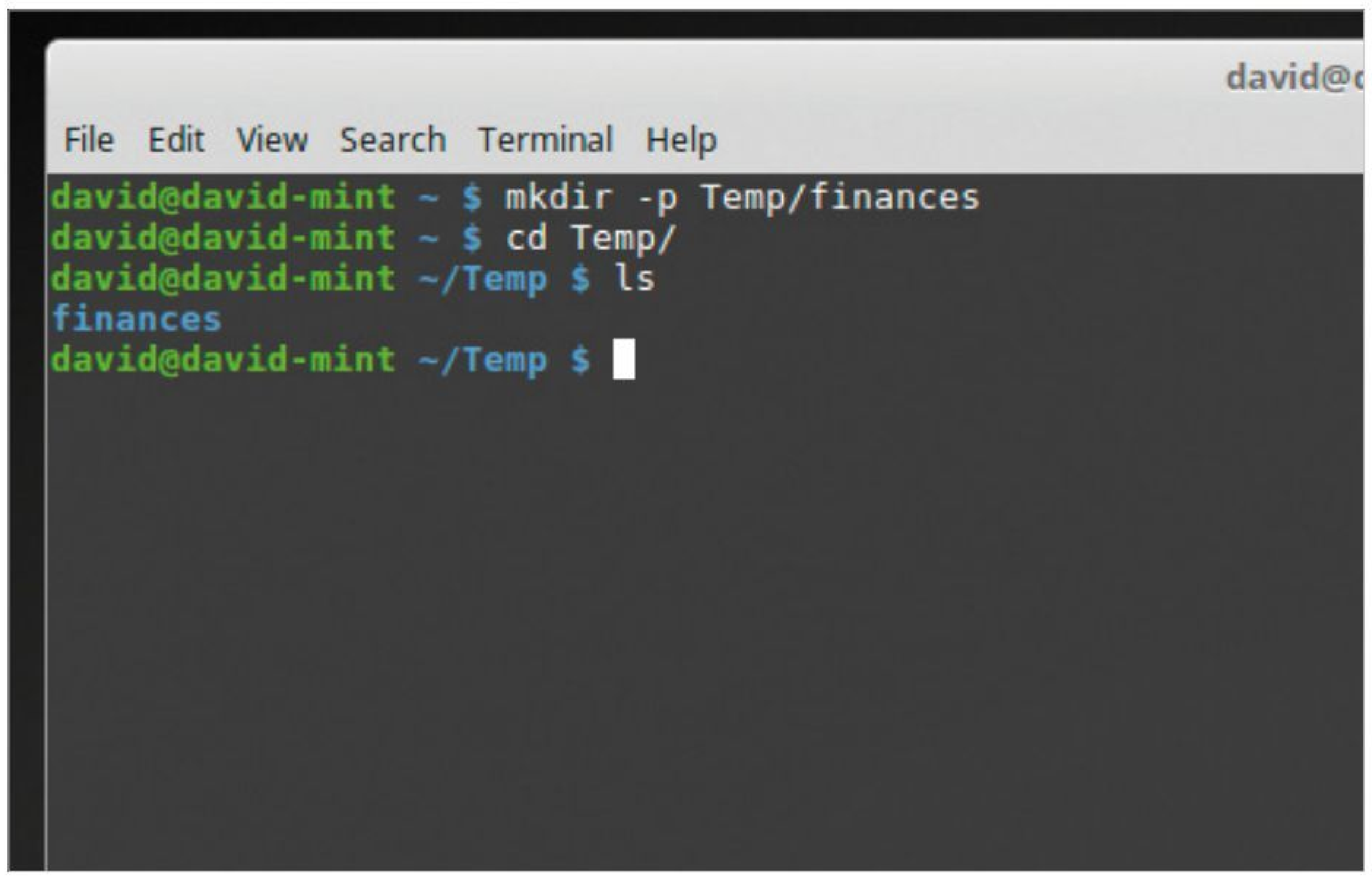
STEP 4 You can create directories within directories that are already created. For example, enter the testdir directory with: `cd testdir/` followed by `ls` to list the folder structure. Naturally there's nothing present, as you've just created the directory. Now drop back to Home with `cd ~` and enter: `mkdir testdir/reports`. Go back to the testdir, `cd testdir/` and `ls` again.



```
david@david-mint ~ $ cd testdir/
david@david-mint ~/testdir $ ls
david@david-mint ~/testdir $ cd ~
david@david-mint ~ $ mkdir testdir/reports
david@david-mint ~ $ cd testdir/
david@david-mint ~/testdir $ ls
reports
david@david-mint ~/testdir $
```

STEP 5

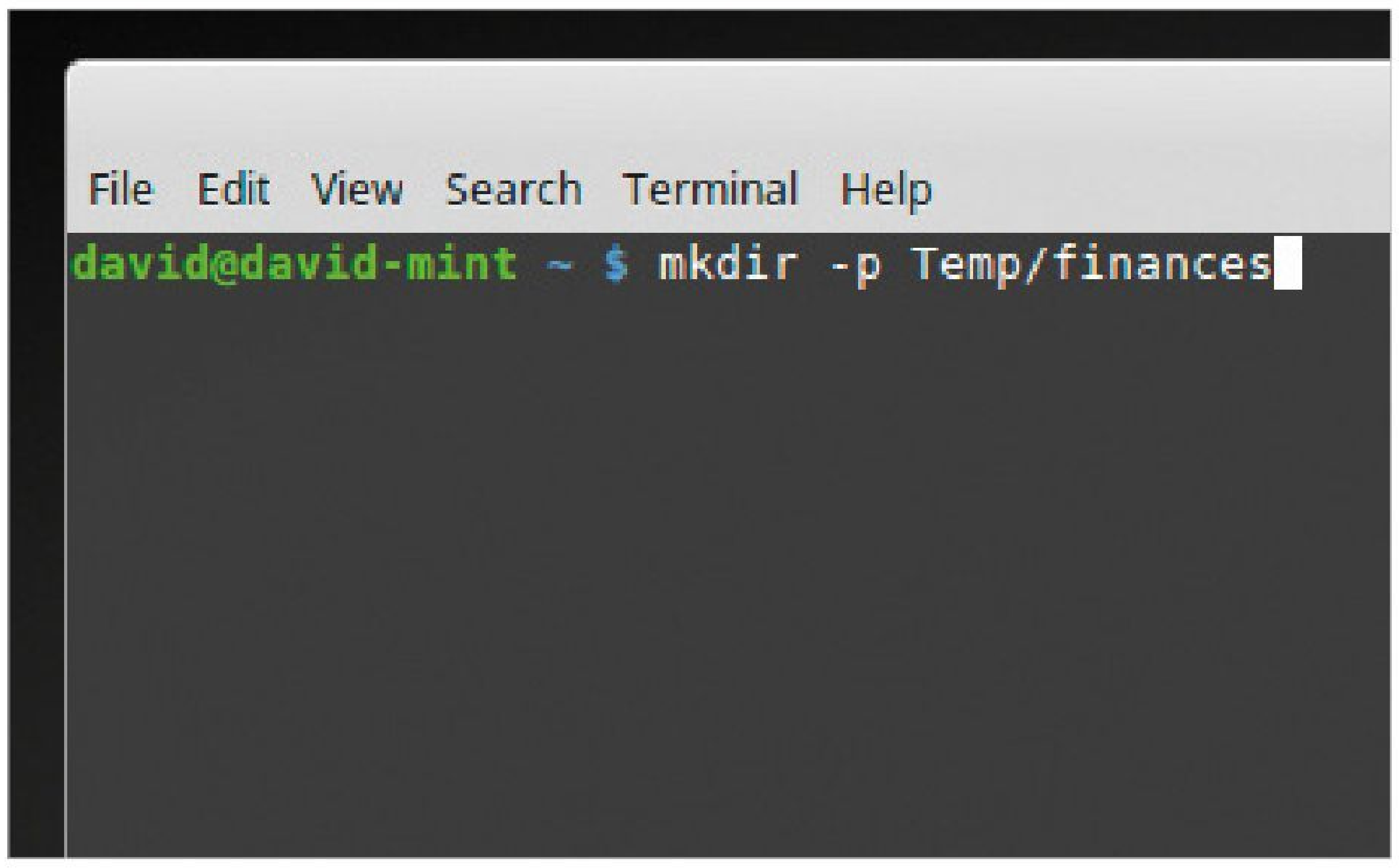
The command to create directories is quite logical, therefore. You can create the directory and any sub-directories within. However, what if you want to create a directory and a sub-directory in a single command? Make sure you're at Home (`cd ~`) and enter: `mkdir -p Temp/finances`. Now, `cd Temp/` and `ls` to list the new directory.


david@c
File Edit View Search Terminal Help

```
david@david-mint ~ $ mkdir -p Temp/finances
david@david-mint ~ $ cd Temp/
david@david-mint ~/Temp $ ls
finances
david@david-mint ~/Temp $ 
```

STEP 6

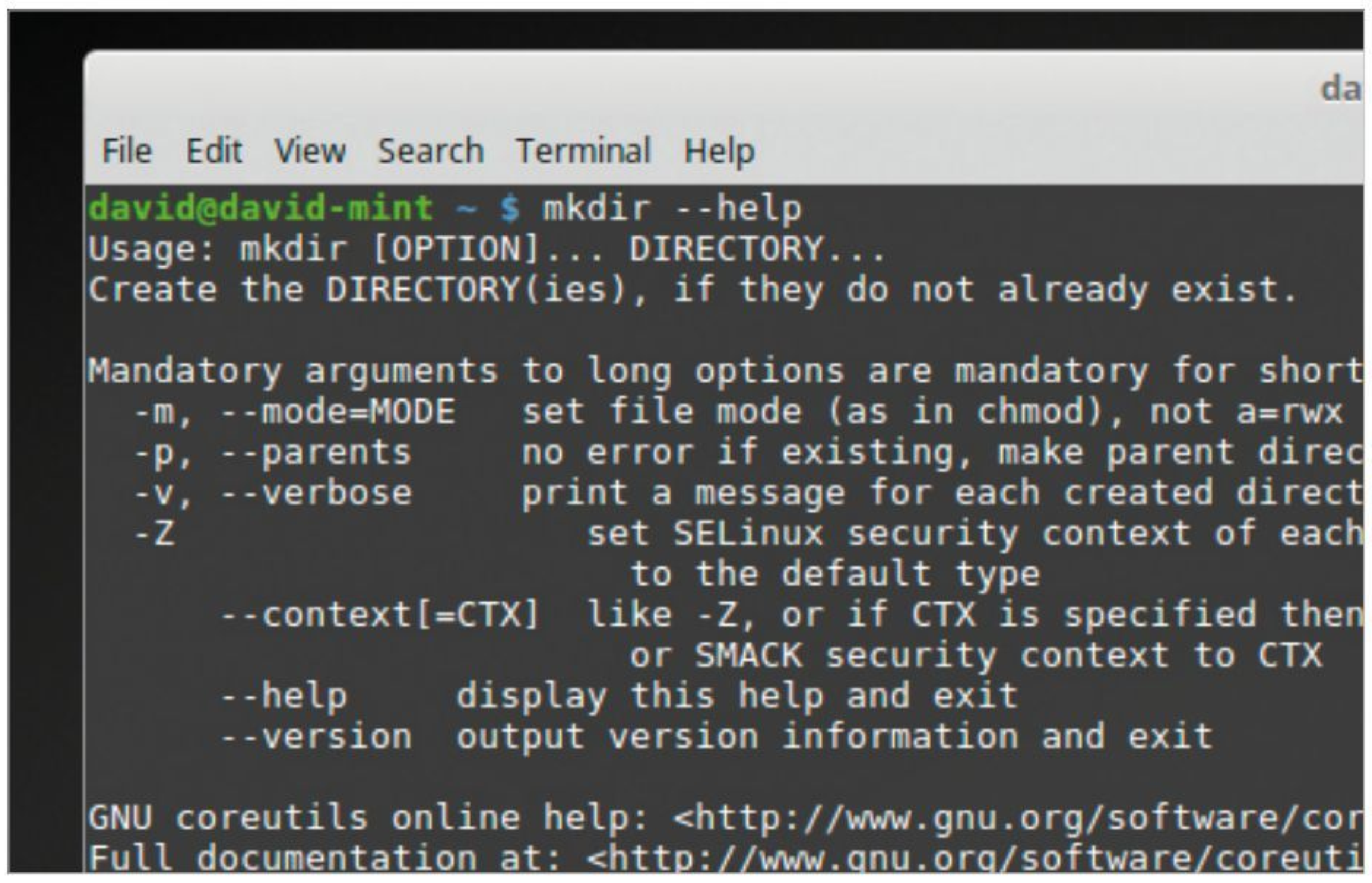
The -p option is what enables the mkdir command to create the sub-directory as well as the parent directory. In Linux, commands always follow the same structure: Command, Option and Argument. In the previous step example, command (`mkdir`), option (`-p`) and argument (`Temp/finances`).


File Edit View Search Terminal Help

```
david@david-mint ~ $ mkdir -p Temp/finances
```

STEP 7

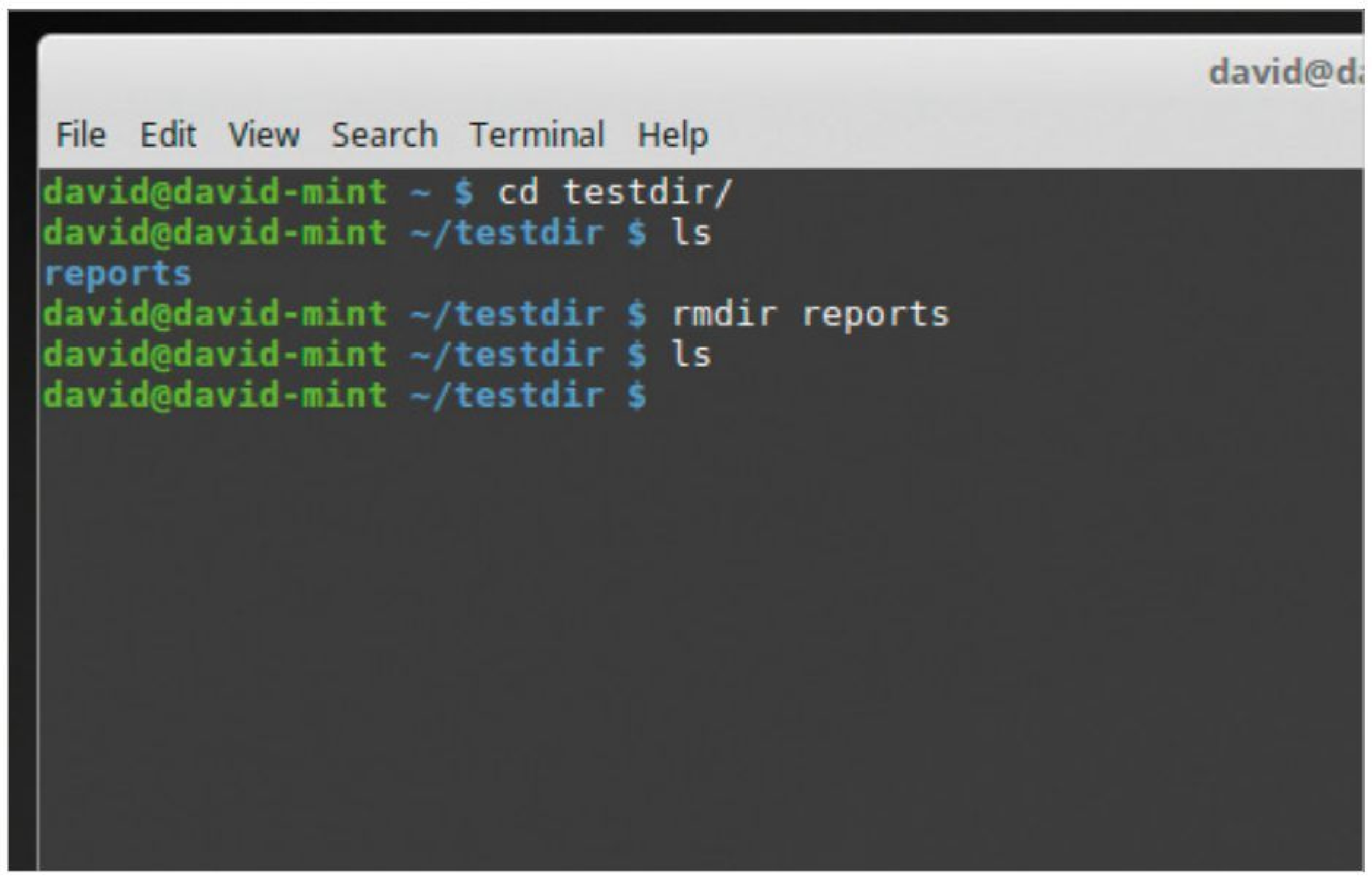
If you want to drill down into the various options available for the mkdir command, you can enter: `mkdir --help` into the Terminal. This will provide a quick help guide detailing the options and how the command structure works.


da
File Edit View Search Terminal Help

```
david@david-mint ~ $ mkdir --help
Usage: mkdir [OPTION]... DIRECTORY...
Create the DIRECTORY(ies), if they do not already exist.

Mandatory arguments to long options are mandatory for short
  -m, --mode=MODE   set file mode (as in chmod), not a=rwx
  -p, --parents     no error if existing, make parent direc
  -v, --verbose     print a message for each created direct
  -Z                   set SELinux security context of each
                         to the default type
      --context[=CTX]  like -Z, or if CTX is specified then
                         or SMACK security context to CTX
      --help     display this help and exit
      --version  output version information and exit

GNU coreutils online help: <http://www.gnu.org/software/cor
Full documentation at: <http://www.gnu.org/software/coreuti
```

STEP 8

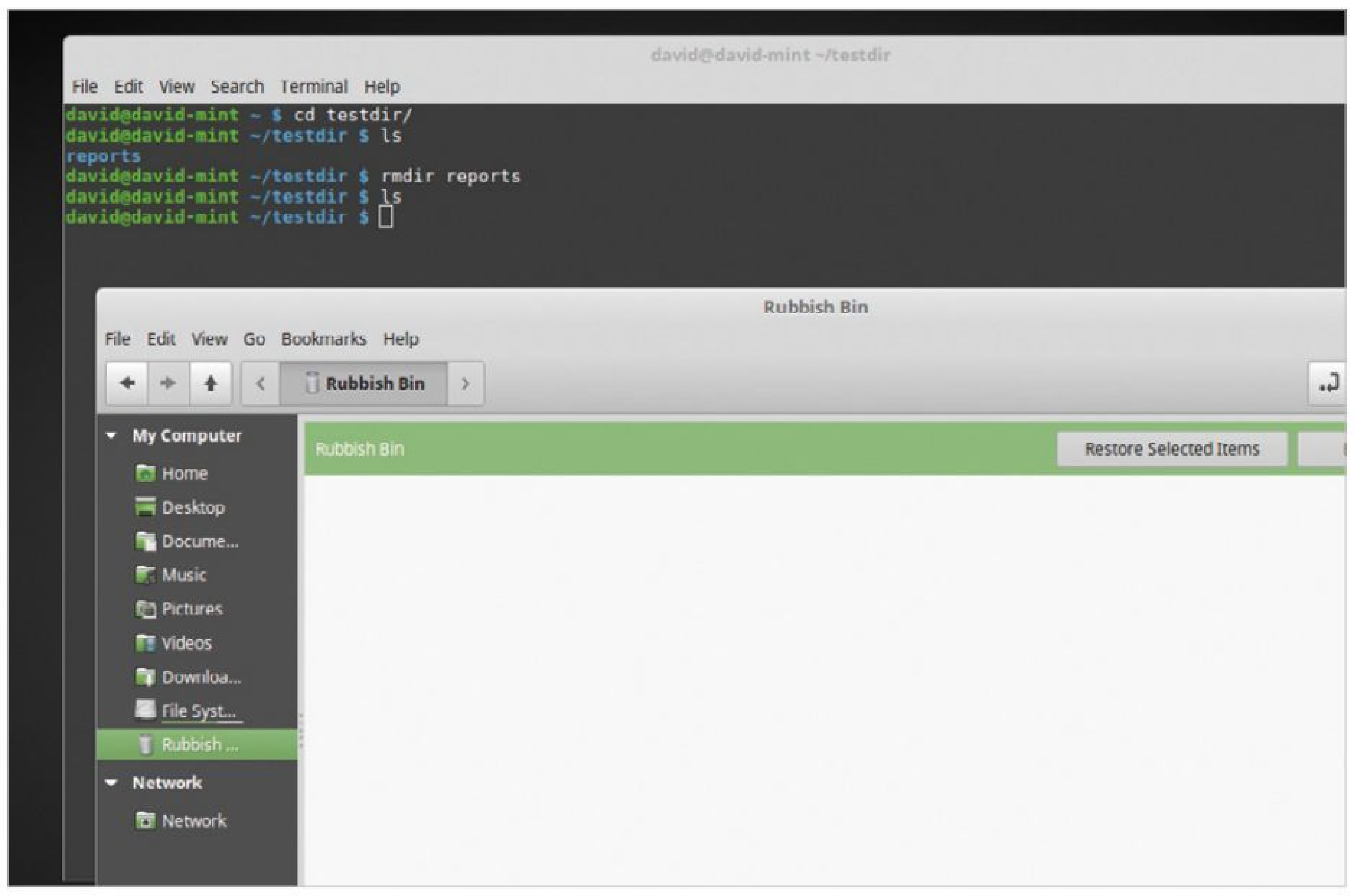
Now that you've created some directories, let's see about removing them. Start by entering the testdir directory and listing its contents: `cd testdir/`, then `ls`. The previously created reports sub-directory is present. One way to remove it is to enter: `rmdir reports`, then `ls` again to confirm it's not there.


david@d
File Edit View Search Terminal Help

```
david@david-mint ~ $ cd testdir/
david@david-mint ~/testdir $ ls
reports
david@david-mint ~/testdir $ rmdir reports
david@david-mint ~/testdir $ ls
david@david-mint ~/testdir $
```

STEP 9

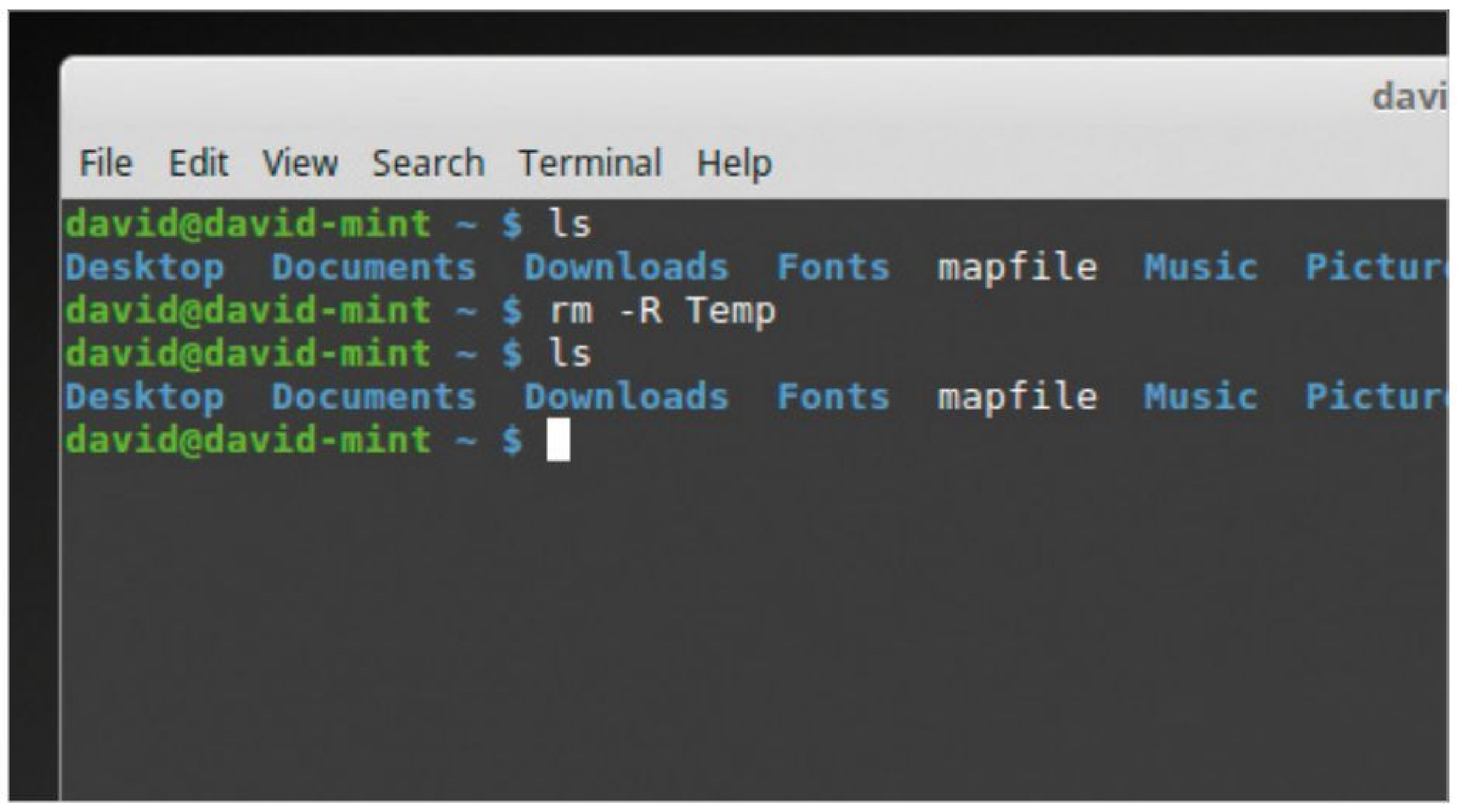
A quick warning: removing a directory in the Terminal doesn't place it in the Mint Rubbish Bin, via Nemo file manager. The same goes for any files, too. If you remove a directory from the Terminal commands then it's gone for good.


david@david-mint ~/testdir
File Edit View Search Terminal Help
Rubbish Bin
File Edit View Go Bookmarks Help
Rubbish Bin
My Computer
Home
Desktop
Docume...
Music
Pictures
Videos
Downloa...
File Syst...
Rubbish ...
Network
Network
Rubbish Bin
Restore Selected Items

```
david@david-mint ~ $ cd testdir/
david@david-mint ~/testdir $ ls
reports
david@david-mint ~/testdir $ rmdir reports
david@david-mint ~/testdir $ ls
david@david-mint ~/testdir $ 
```

STEP 10

Rmdir will only remove empty directories, to remove directories containing sub-directories, or even files, you need to use the rm command with the -R option. For example, on the Temp/finance directories, use `rm -R Temp`. A quick `ls` reveals that the parent folder and all of its contents are removed. Careful when using this command.


davi
File Edit View Search Terminal Help

```
david@david-mint ~ $ ls
Desktop  Documents  Downloads  Fonts  mapfile  Music  Pictur
david@david-mint ~ $ rm -R Temp
david@david-mint ~ $ ls
Desktop  Documents  Downloads  Fonts  mapfile  Music  Pictur
david@david-mint ~ $ 
```

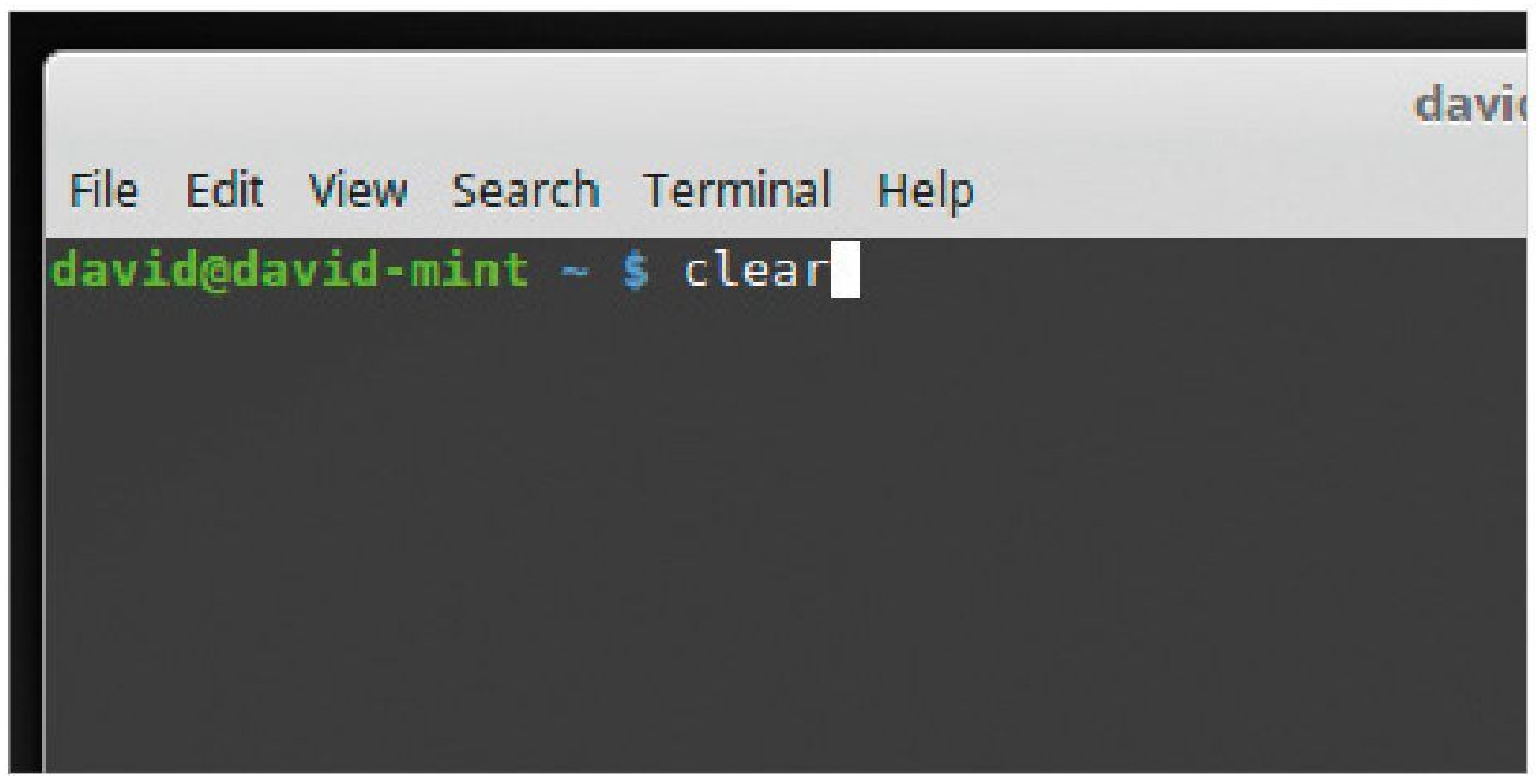
Update Mint via the Terminal

So far we've been using the shield icon to launch Mint Update Manager in order to update the system, and upgrade the currently installed apps, tools and other elements. However, you can also accomplish a complete system update and upgrade from the Terminal.

USING APT-GET

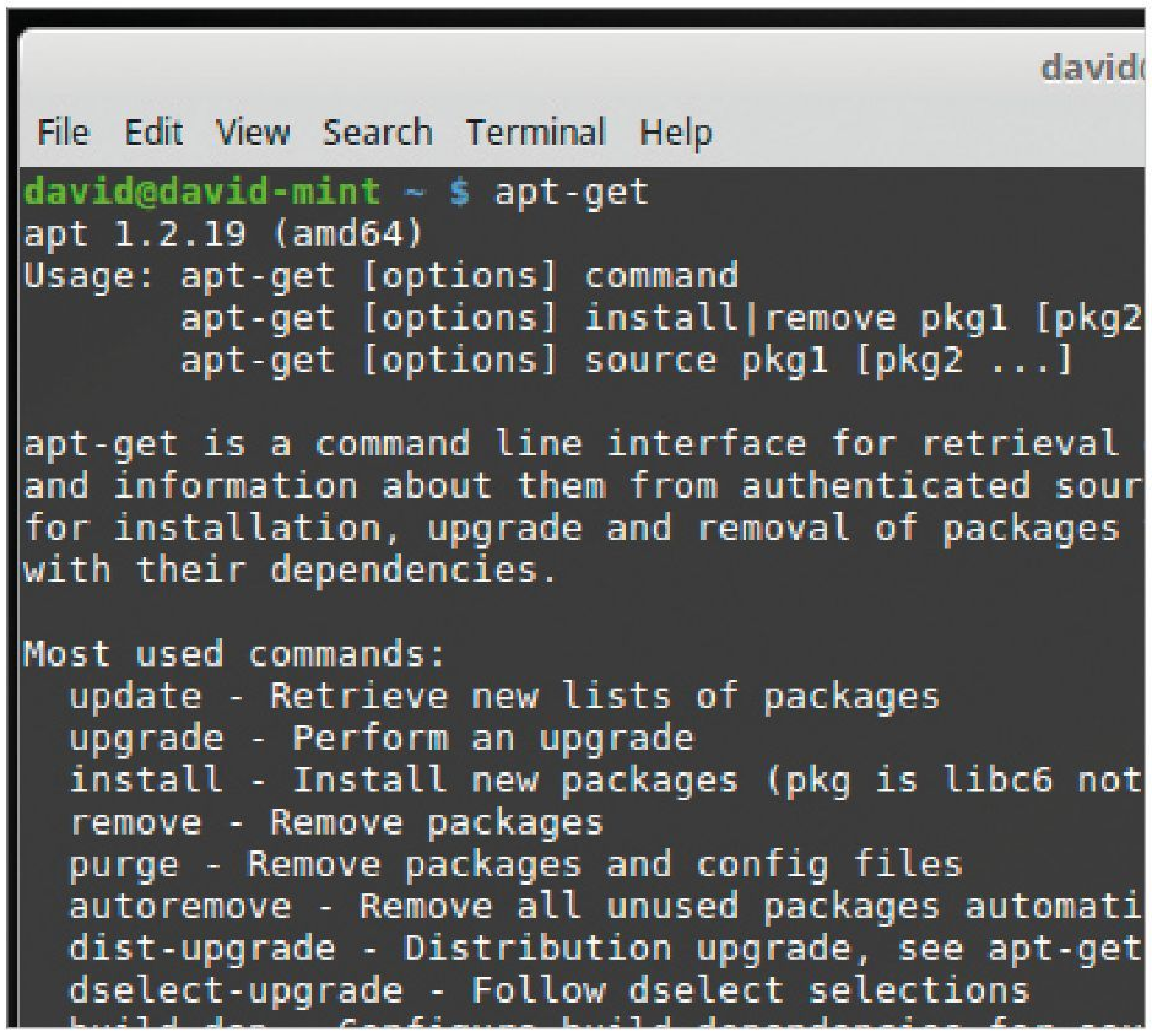
To update and upgrade via the Terminal you can use the APT (Advanced Packaging Tool) command. It's a powerful command and combines different elements depending on its use.

STEP 1 Start by opening a new Terminal or if you already have one opened clear its contents with the `clear` command. This gives you a clean slate on which to work.



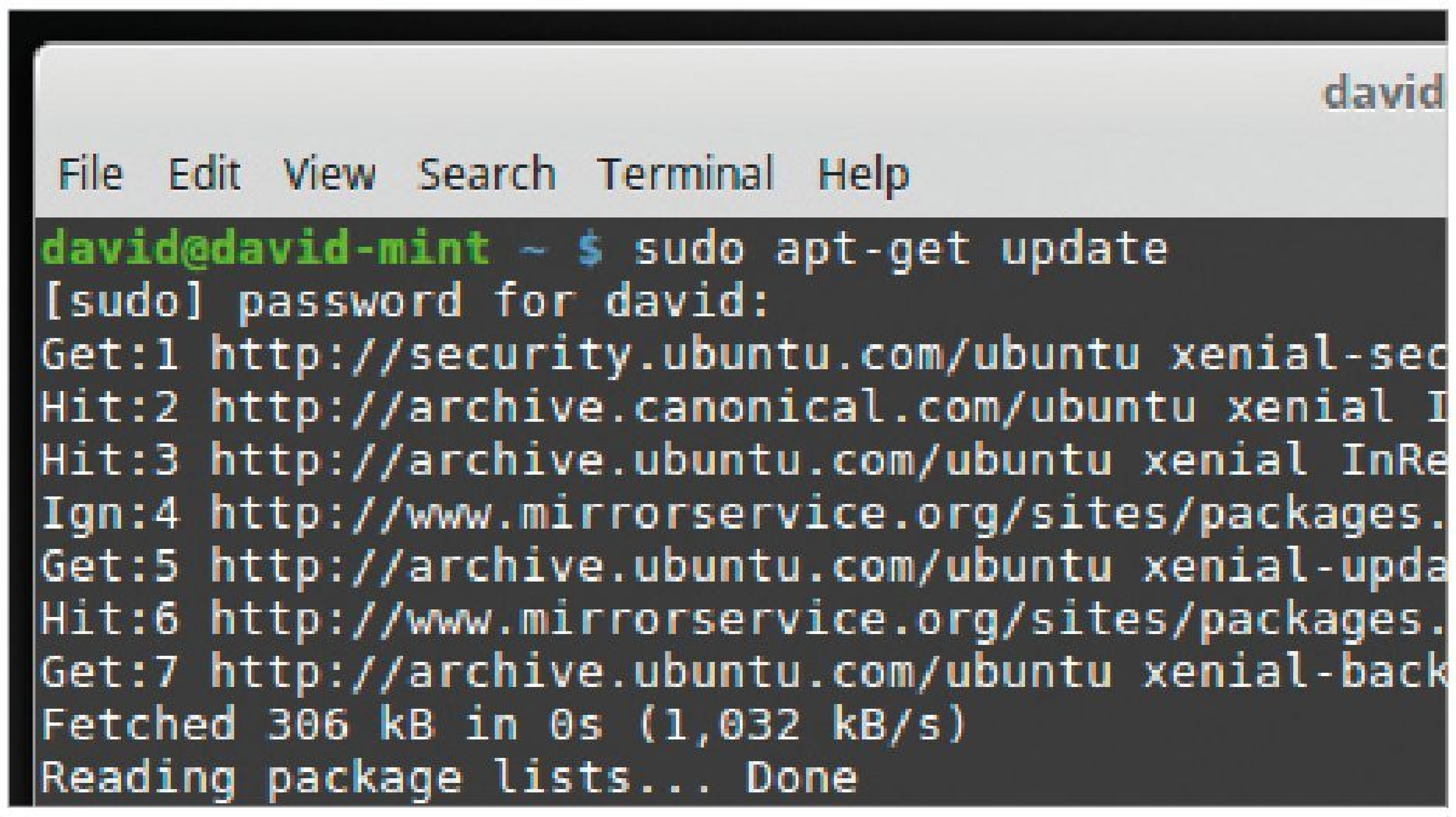
```
david@david-mint ~ $ clear
```

STEP 2 Enter: `apt-get` into the Terminal. This will bring up a list of the most used apt-get commands, along with a brief description of what the command does. It's worth having a look at, even if it may not make a huge amount of sense at the moment.



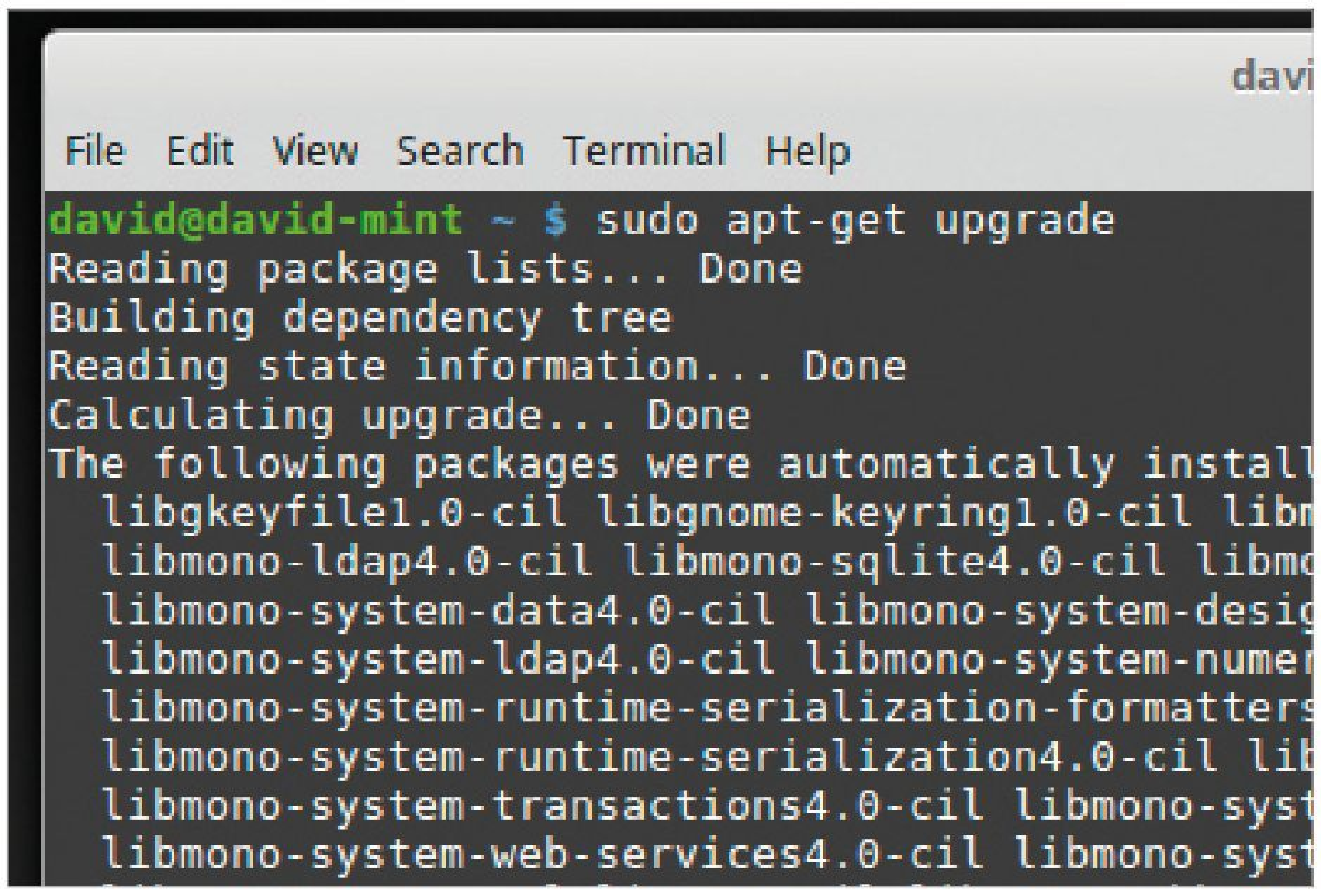
```
david@david-mint ~ $ apt-get
apt 1.2.19 (amd64)
Usage: apt-get [options] command
       apt-get [options] install|remove pkg1 [pkg2
       apt-get [options] source pkg1 [pkg2 ...]

apt-get is a command line interface for retrieval
and information about them from authenticated sour
for installation, upgrade and removal of packages
with their dependencies.

Most used commands:
  update - Retrieve new lists of packages
  upgrade - Perform an upgrade
  install - Install new packages (pkg is libc6 not
  remove - Remove packages
  purge - Remove packages and config files
  autoremove - Remove all unused packages automati
  dist-upgrade - Distribution upgrade, see apt-get
  dselect-upgrade - Follow dselect selections
```

STEP 3 Essentially, apt-get is used to update and upgrade the software in Linux Mint. Using the Update element will retrieve new package lists and update the list of source files. Upgrade downloads and performs an upgrade to the latest versions of those files. To start the entire Upgrade and Update process, enter: `sudo apt-get update` followed by your password.



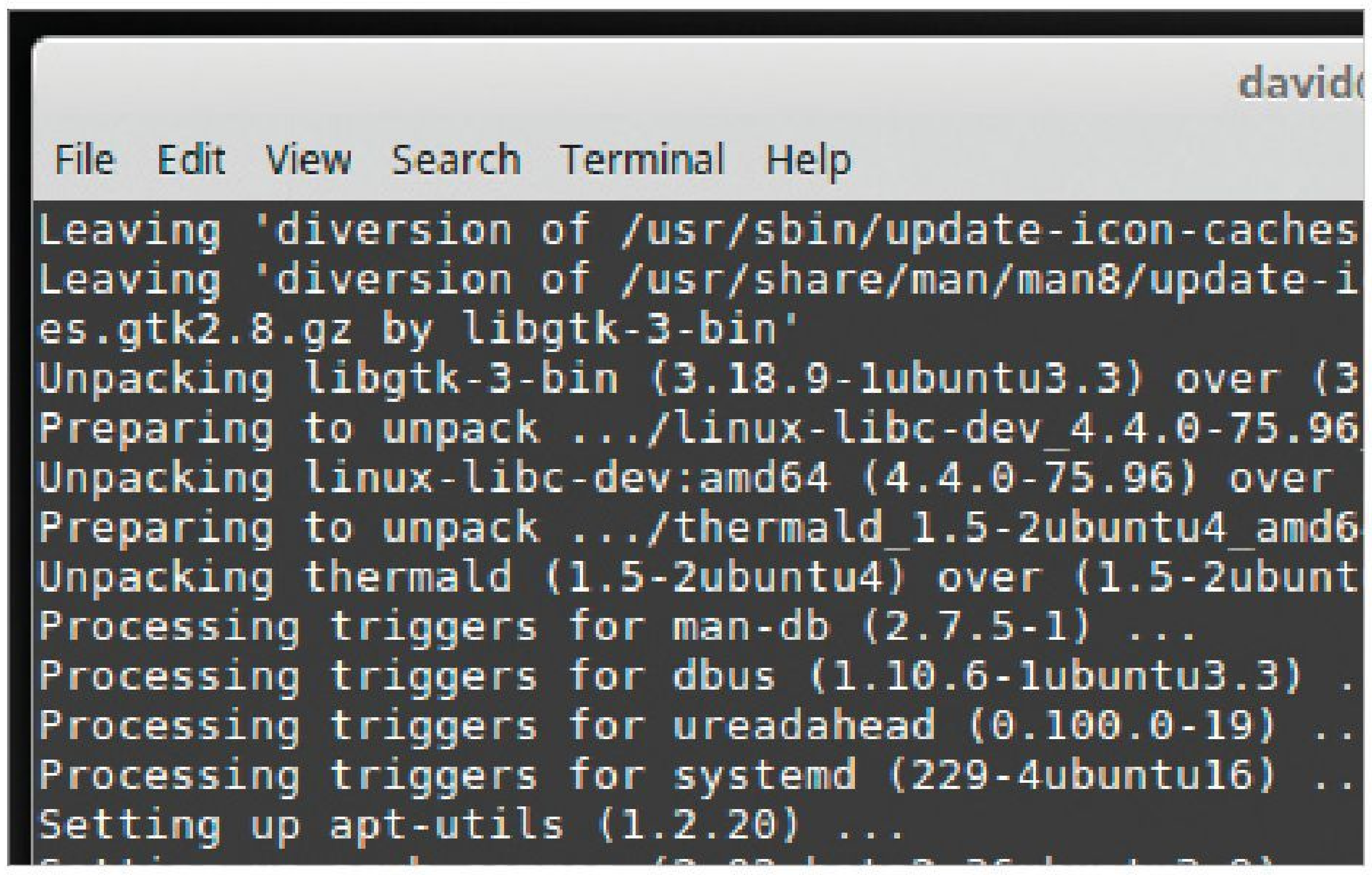
```
david@david-mint ~ $ sudo apt-get update
[sudo] password for david:
Get:1 http://security.ubuntu.com/ubuntu xenial-sec
Hit:2 http://archive.canonical.com/ubuntu xenial I
Hit:3 http://archive.ubuntu.com/ubuntu xenial InRe
Ign:4 http://www.mirrorservice.org/sites/packages.
Get:5 http://archive.ubuntu.com/ubuntu xenial-upda
Hit:6 http://www.mirrorservice.org/sites/packages.
Get:7 http://archive.ubuntu.com/ubuntu xenial-back
Fetched 306 kB in 0s (1,032 kB/s)
Reading package lists... Done
```

STEP 4 You may notice the addition of the `sudo` command. The sudo command once meant Super User Do; these days it's more acceptable as Substitute User Do. It means the administrative user (Super User) uses APT (Advanced Packaging Tool) to Get any Updates. Now try this: `sudo apt-get upgrade`.



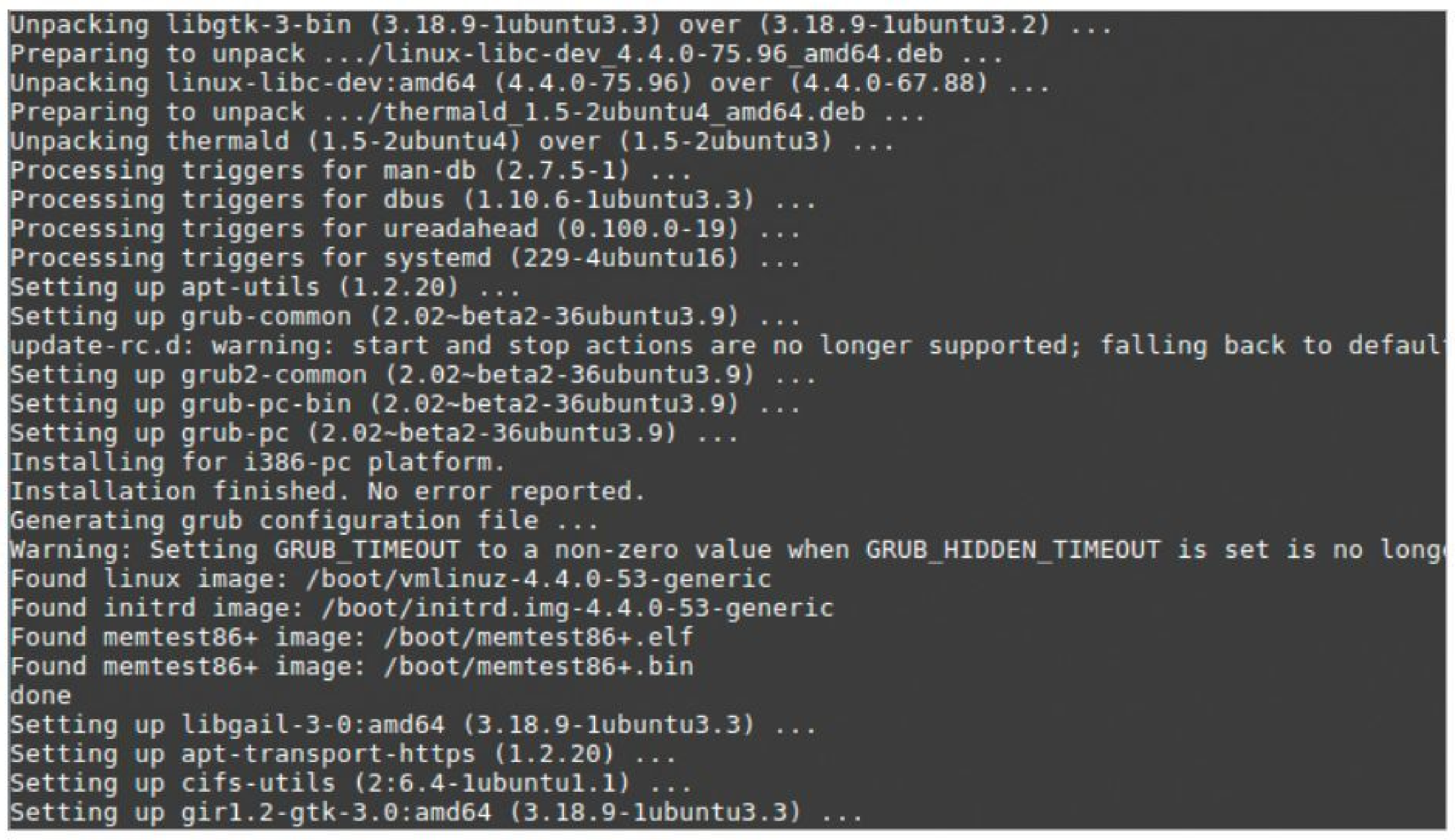
```
david@david-mint ~ $ sudo apt-get upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically install
  libgkeyfile1.0-cil libgnome-keyring1.0-cil libm
  libmono-ldap4.0-cil libmono-sqlite4.0-cil libmo
  libmono-system-data4.0-cil libmono-system-desig
  libmono-system-ldap4.0-cil libmono-system-numer
  libmono-system-runtime-serialization-formatters
  libmono-system-runtime-serialization4.0-cil lib
  libmono-system-transactions4.0-cil libmono-syst
  libmono-system-web-services4.0-cil libmono-syst
```

STEP 5 Depending on the state of your updates, if you have any waiting to be installed, you might be asked if you want to apply the results of the `sudo apt-get upgrade` command. You can press `y` to accept and continue. What's happening here is that apt-get has some updated software to apply to Mint and you're okaying the action.



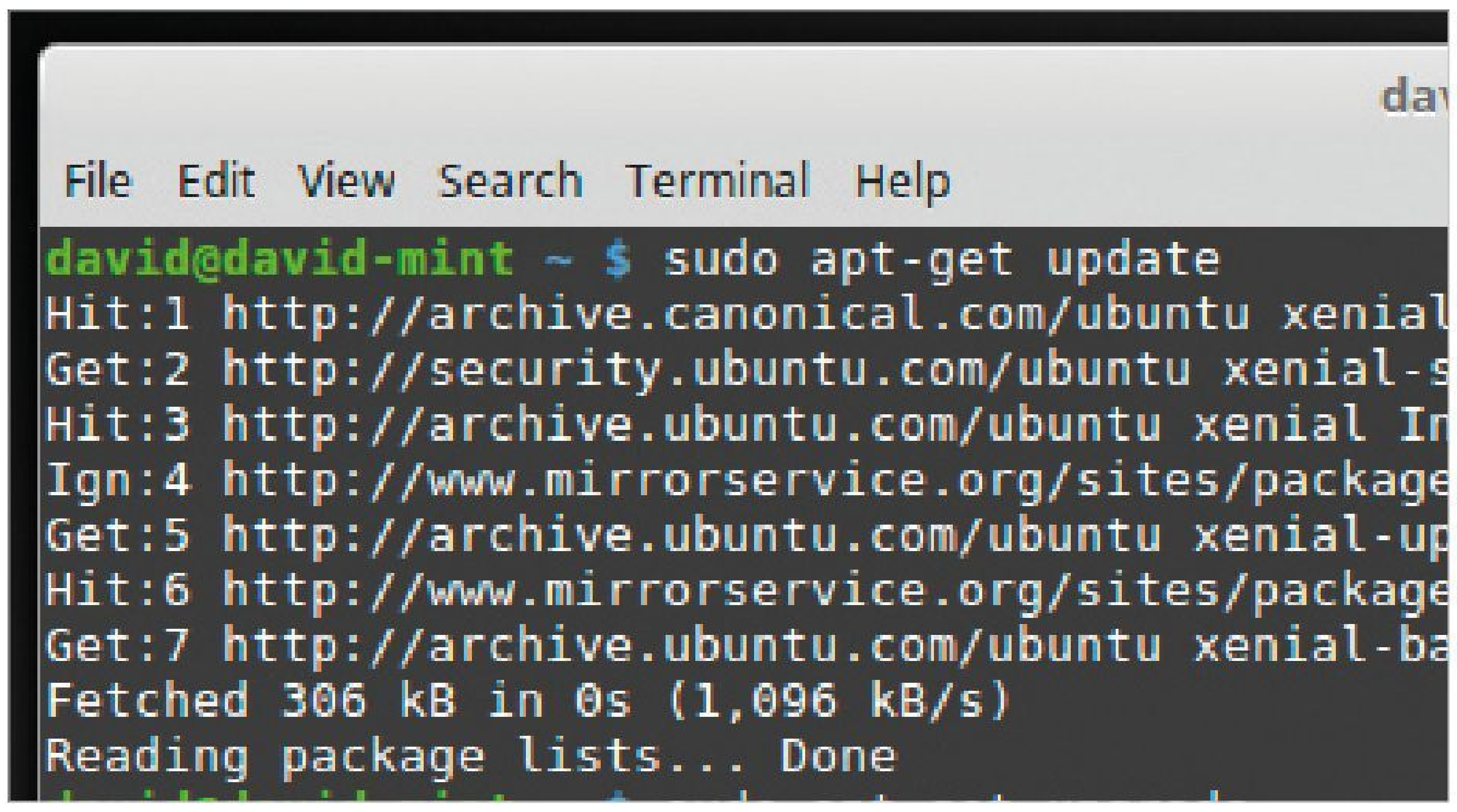
```
Leaving 'diversion of /usr/sbin/update-icon-caches
Leaving 'diversion of /usr/share/man/man8/update-i
es.gtk2.8.gz by libgtk-3-bin'
Unpacking libgtk-3-bin (3.18.9-1ubuntu3.3) over (3
Preparing to unpack .../linux-libc-dev_4.4.0-75.96
Unpacking linux-libc-dev:amd64 (4.4.0-75.96) over
Preparing to unpack .../thermald_1.5-2ubuntu4_amd6
Unpacking thermald (1.5-2ubuntu4) over (1.5-2ubunt
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for dbus (1.10.6-1ubuntu3.3) .
Processing triggers for ureadahead (0.100.0-19) ..
Processing triggers for systemd (229-4ubuntu16) ..
Setting up apt-utils (1.2.20) ...
```

STEP 6 There's likely to be a long list of what seems like gibberish now filling your Terminal window but don't worry. The files necessary for the upgrade have been downloaded, prepared, unpacked, processed, installed and set up correctly. There's a lot going on when you perform an upgrade, even with the smallest package.



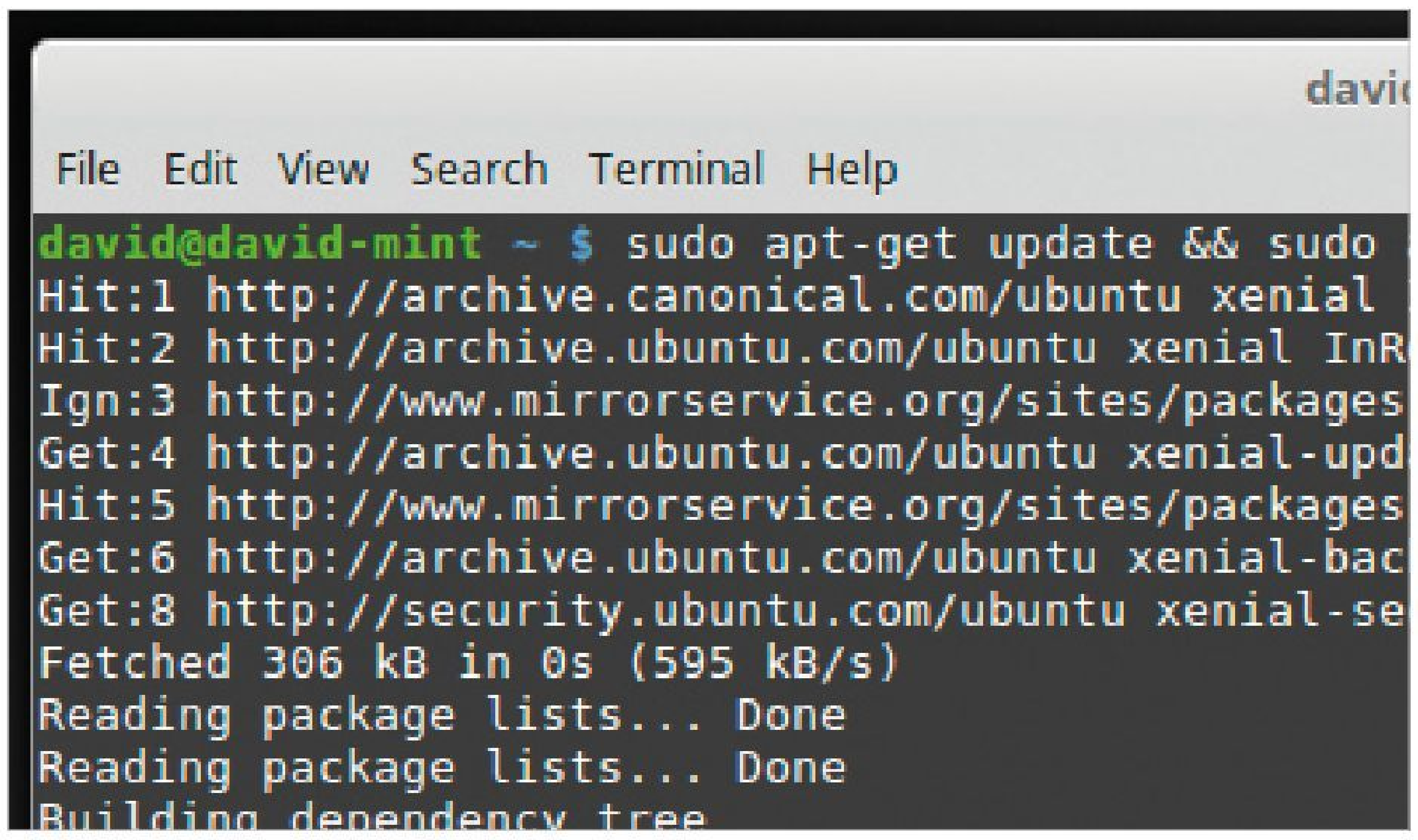
```
Unpacking libgtk-3-bin (3.18.9-1ubuntu3.3) over (3.18.9-1ubuntu3.2) ...
Preparing to unpack .../linux-libc-dev_4.4.0-75.96_amd64.deb ...
Unpacking linux-libc-dev:amd64 (4.4.0-75.96) over (4.4.0-67.88) ...
Preparing to unpack .../thermald_1.5-2ubuntu4_amd64.deb ...
Unpacking thermald (1.5-2ubuntu4) over (1.5-2ubuntu3) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for dbus (1.10.6-1ubuntu3.3) ...
Processing triggers for ureadahead (0.100.0-19) ...
Processing triggers for systemd (229-4ubuntu16) ...
Setting up apt-utils (1.2.20) ...
Setting up grub-common (2.02~beta2-36ubuntu3.9) ...
update-rc.d: warning: start and stop actions are no longer supported; falling back to defaul
Setting up grub2-common (2.02~beta2-36ubuntu3.9) ...
Setting up grub-pc-bin (2.02~beta2-36ubuntu3.9) ...
Setting up grub-pc (2.02~beta2-36ubuntu3.9) ...
Installing for i386-pc platform.
Installation finished. No error reported.
Generating grub configuration file ...
Warning: Setting GRUB_TIMEOUT to a non-zero value when GRUB_HIDDEN_TIMEOUT is set is no longe
Found linux image: /boot/vmlinuz-4.4.0-53-generic
Found initrd image: /boot/initrd.img-4.4.0-53-generic
Found memtest86+ image: /boot/memtest86+.elf
Found memtest86+ image: /boot/memtest86+.bin
done
Setting up libgail-3-0:amd64 (3.18.9-1ubuntu3.3) ...
Setting up apt-transport-https (1.2.20) ...
Setting up cifs-utils (2:6.4-1ubuntu1.1) ...
Setting up gir1.2-gtk-3.0:amd64 (3.18.9-1ubuntu3.3) ...
```

STEP 7 At this point, your system is now up to date according to the available list of packages from the apt-get update command. You can run through the process one more time though, just to check if everything went okay. To recap, enter: `sudo apt-get update`, press Enter; then type: `sudo apt-get upgrade` and press Enter.



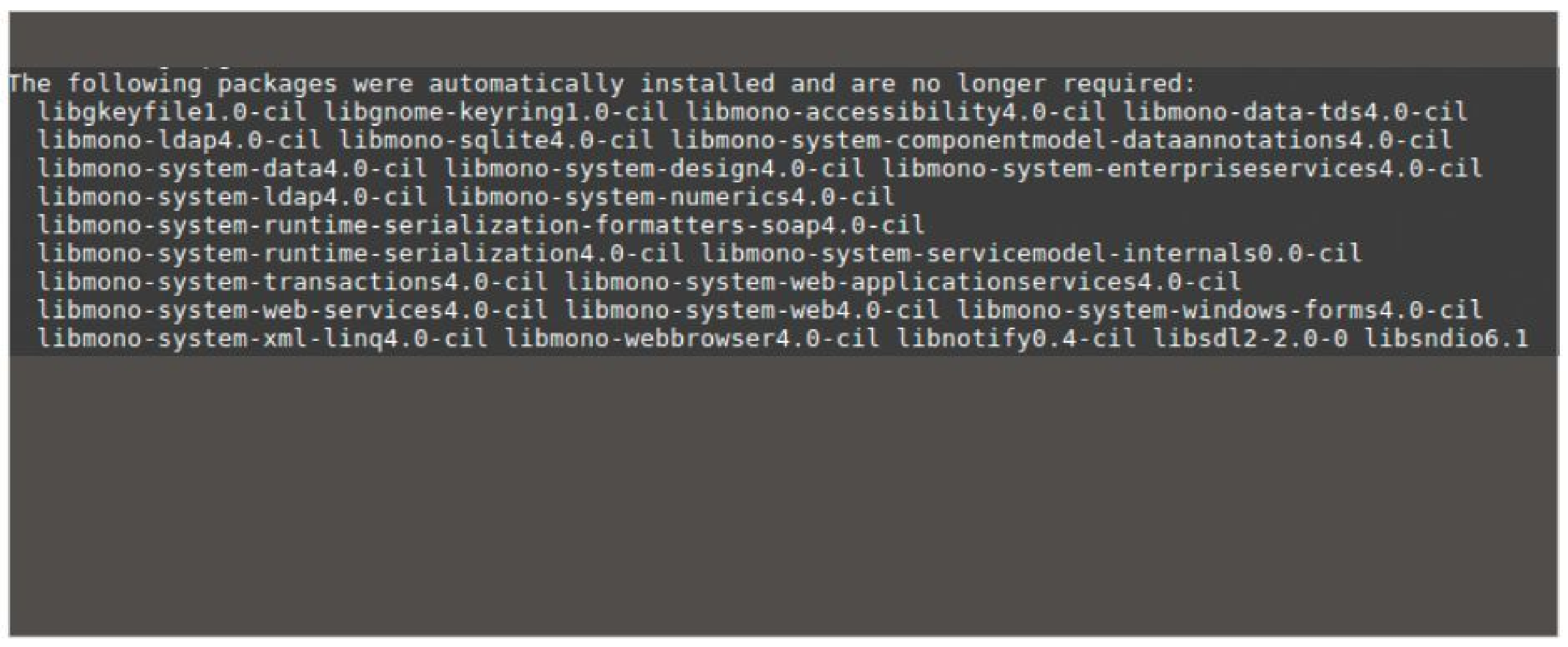
```
david@david-mint ~ $ sudo apt-get update
Hit:1 http://archive.canonical.com/ubuntu xenial
Get:2 http://security.ubuntu.com/ubuntu xenial-s
Hit:3 http://archive.ubuntu.com/ubuntu xenial In
Ign:4 http://www.mirrorservice.org/sites/package
Get:5 http://archive.ubuntu.com/ubuntu xenial-up
Hit:6 http://www.mirrorservice.org/sites/package
Get:7 http://archive.ubuntu.com/ubuntu xenial-ba
Fetched 306 kB in 0s (1,096 kB/s)
Reading package lists... Done
```

STEP 8 Interestingly, Linux Mint, amongst other distros, offers you the ability to chain several commands together. Therefore, in this example, we can use: `sudo apt-get update && sudo apt-get upgrade`. The double ampersand is what combines the commands and will work perfectly, providing the preceding command went without a hitch. It's recommended to start any session with update and upgrade combo.



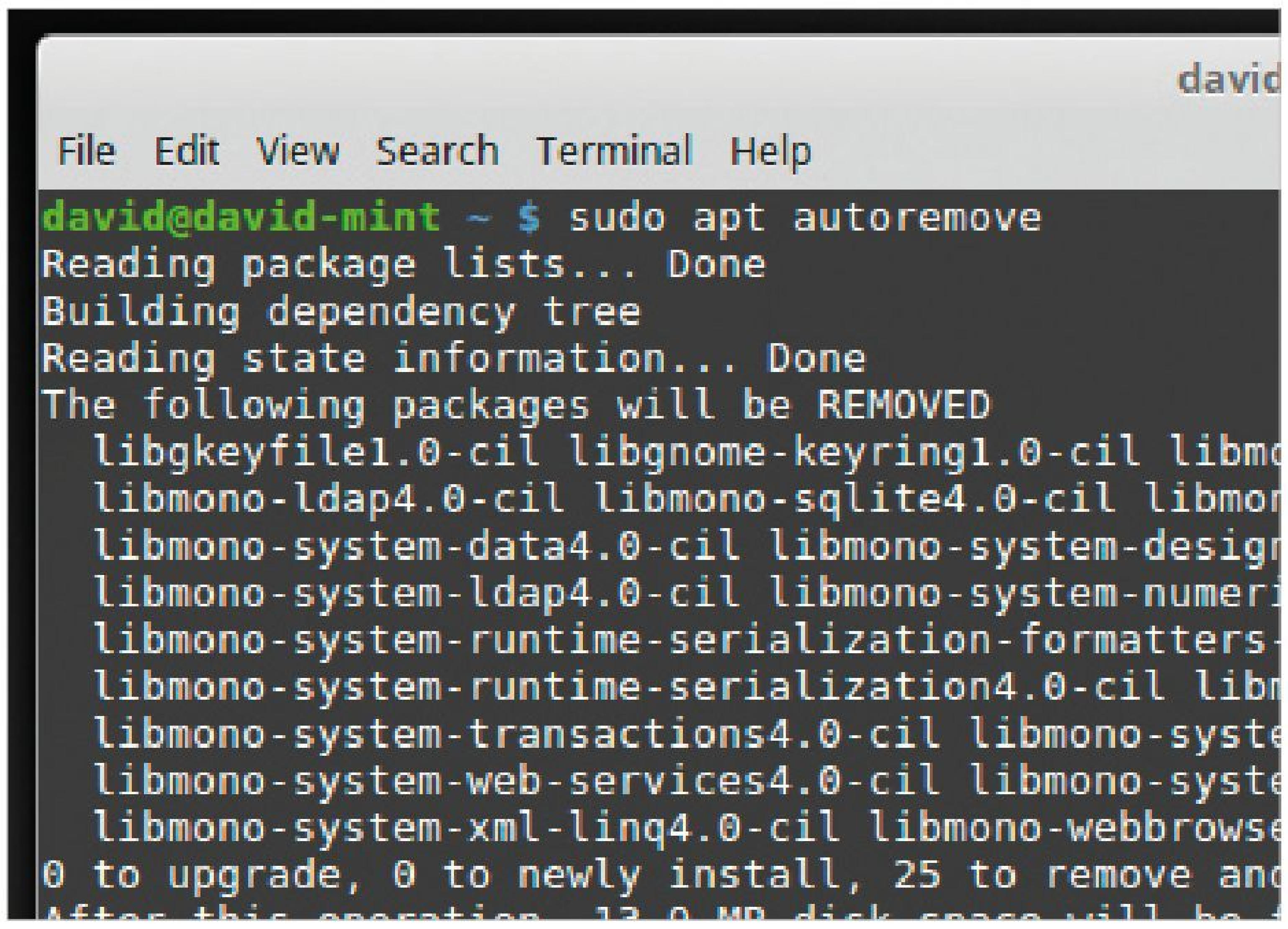
```
david@david-mint ~ $ sudo apt-get update && sudo
Hit:1 http://archive.canonical.com/ubuntu xenial
Hit:2 http://archive.ubuntu.com/ubuntu xenial InR
Ign:3 http://www.mirrorservice.org/sites/packages
Get:4 http://archive.ubuntu.com/ubuntu xenial-upd
Hit:5 http://www.mirrorservice.org/sites/packages
Get:6 http://archive.ubuntu.com/ubuntu xenial-bac
Get:8 http://security.ubuntu.com/ubuntu xenial-se
Fetched 306 kB in 0s (595 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree
```

STEP 9 The eagle-eyed among you will have noticed that in our screenshots there's a statement that reads: 'The following packages were automatically installed and are no longer required'. This isn't uncommon, there's often left-over packages from upgrades and installations. However, to keep the system tidy we need to fix this and remove them.



```
The following packages were automatically installed and are no longer required:
  libgkeyfile1.0-cil libgnome-keyring1.0-cil libmono-accessibility4.0-cil libmono-data-tds4.0-cil
  libmono-ldap4.0-cil libmono-sqlite4.0-cil libmono-system-componentmodel-dataannotations4.0-cil
  libmono-system-data4.0-cil libmono-system-design4.0-cil libmono-system-enterpriseservices4.0-cil
  libmono-system-ldap4.0-cil libmono-system-numerics4.0-cil
  libmono-system-runtime-serialization-formatters-soap4.0-cil
  libmono-system-runtime-serialization4.0-cil libmono-system-servicemodel-internals0.0-cil
  libmono-system-transactions4.0-cil libmono-system-web-applicationservices4.0-cil
  libmono-system-web-services4.0-cil libmono-system-web4.0-cil libmono-system-windows-forms4.0-cil
  libmono-system-xml-linq4.0-cil libmono-webbrowser4.0-cil libnotify0.4-cil libsdl2-2.0-0 libsndio6.1
```

STEP 10 To remove any left-over packages, and help keep the system free from clutter, we need to enter the command: `sudo apt-get autoremove`. It's a slightly different command but it works by selecting the left-overs no longer needed and permanently removing them. You may need to enter `y` to confirm the action within the Terminal.



```
david@david-mint ~ $ sudo apt autoremove
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages will be REMOVED
  libgkeyfile1.0-cil libgnome-keyring1.0-cil libmo
  libmono-ldap4.0-cil libmono-sqlite4.0-cil libmon
  libmono-system-data4.0-cil libmono-system-design
  libmono-system-ldap4.0-cil libmono-system-numeri
  libmono-system-runtime-serialization-formatters-
  libmono-system-runtime-serialization4.0-cil libm
  libmono-system-transactions4.0-cil libmono-syste
  libmono-system-web-services4.0-cil libmono-syste
  libmono-system-xml-linq4.0-cil libmono-webbrowse
0 to upgrade, 0 to newly install, 25 to remove and
```

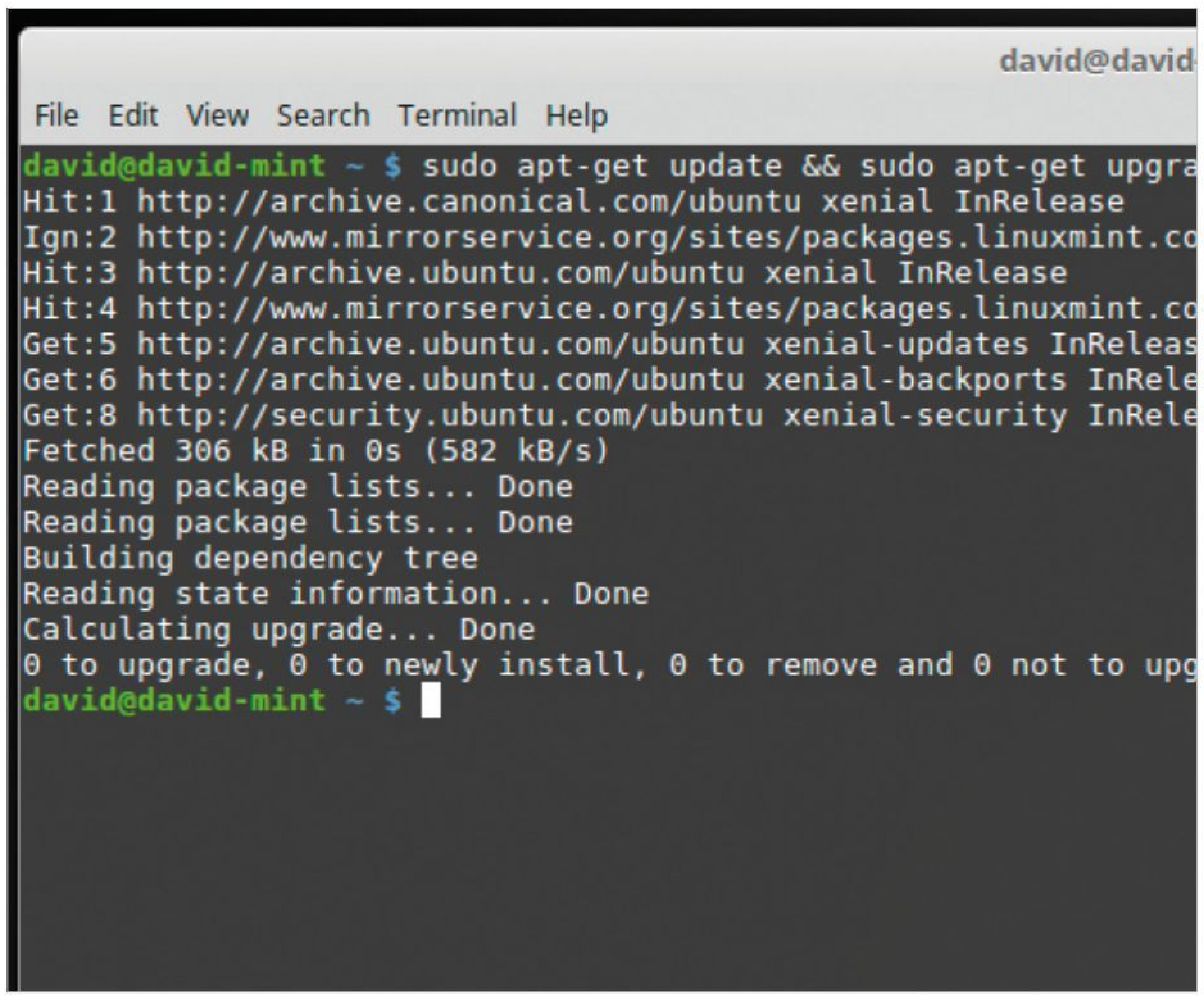
Install Apps via the Terminal – Part 1

Software Manager and Synaptic Package Manager aren't the only way in which to install apps in Linux mint. We've already looked at the Terminal and it's a powerful interface that can do anything the GUI can, and more.

COMMAND LINE INSTALLS

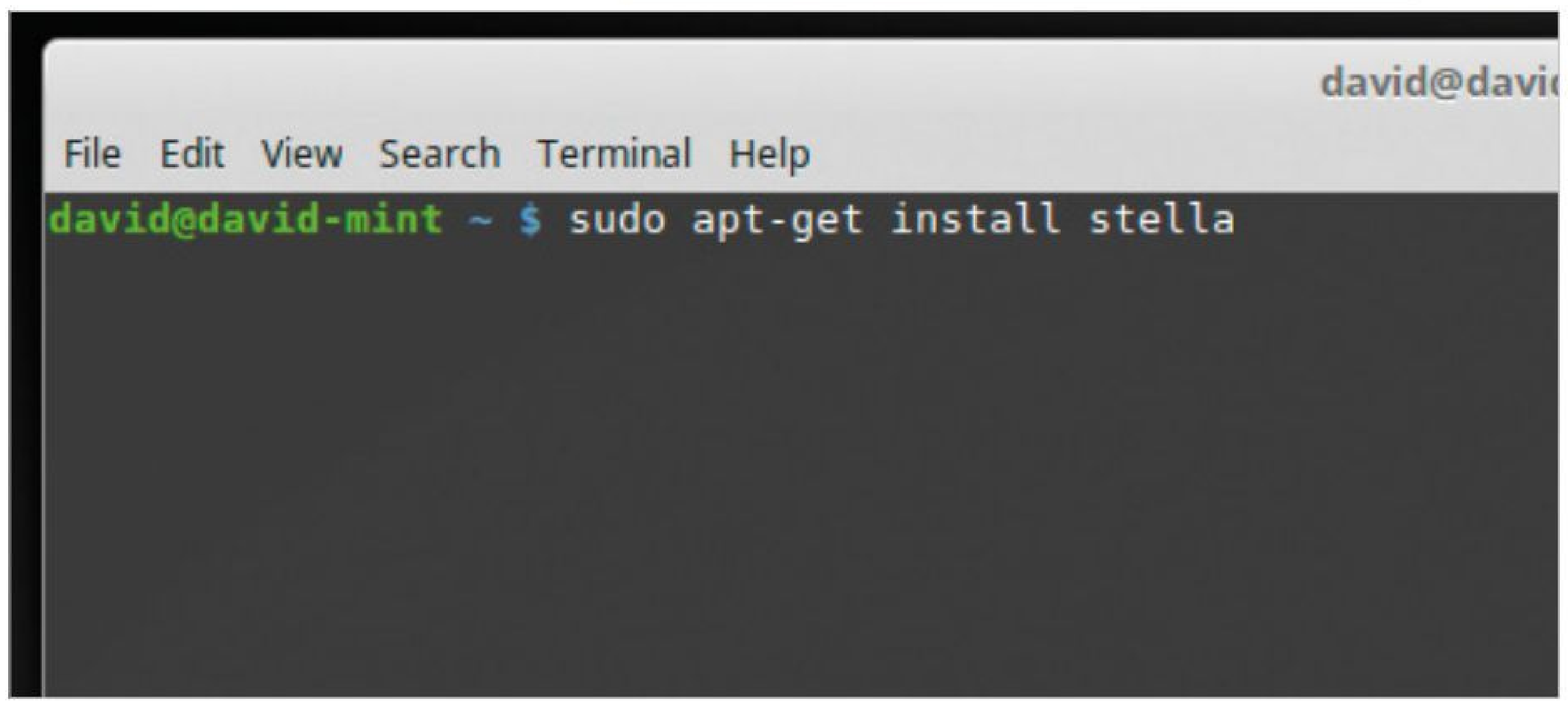
Installing an app with the Terminal may require some nifty keyboard work but you get a finer degree of control over what's being installed and where.

STEP 1 Installing apps via the Terminal is often relatively simple. First though, you need to make sure that the system is up to date. To do this open up the Terminal and enter: `sudo apt-get update && sudo apt-get upgrade`. Enter your password and accept any necessary updates.



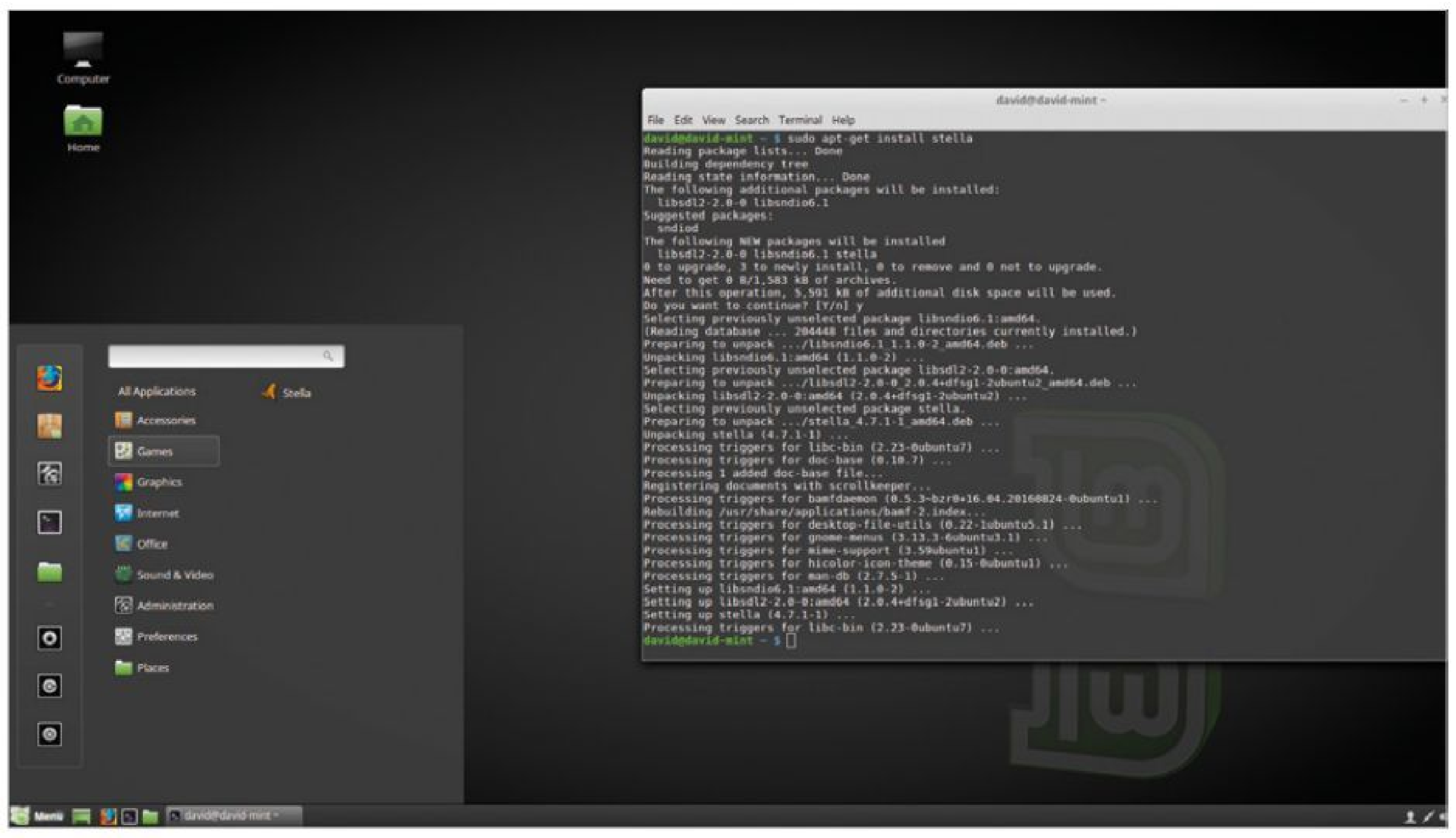
```
david@david-mint ~ $ sudo apt-get update && sudo apt-get upgra
Hit:1 http://archive.canonical.com/ubuntu xenial InRelease
Ign:2 http://www.mirrorservice.org/sites/packages.linuxmint.co
Hit:3 http://archive.ubuntu.com/ubuntu xenial InRelease
Hit:4 http://www.mirrorservice.org/sites/packages.linuxmint.co
Get:5 http://archive.ubuntu.com/ubuntu xenial-updates InReleas
Get:6 http://archive.ubuntu.com/ubuntu xenial-backports InRele
Get:8 http://security.ubuntu.com/ubuntu xenial-security InRele
Fetched 306 kB in 0s (582 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
0 to upgrade, 0 to newly install, 0 to remove and 0 not to upg
david@david-mint ~ $ 
```

STEP 2 The command sudo apt-get update/upgrade and so on are designed to upgrade the software that's already installed on the system but how do you install more apps? As it happens, it's extraordinarily simple. First you need an app to install, let's use Stella again. Enter: `sudo apt-get install stella`.



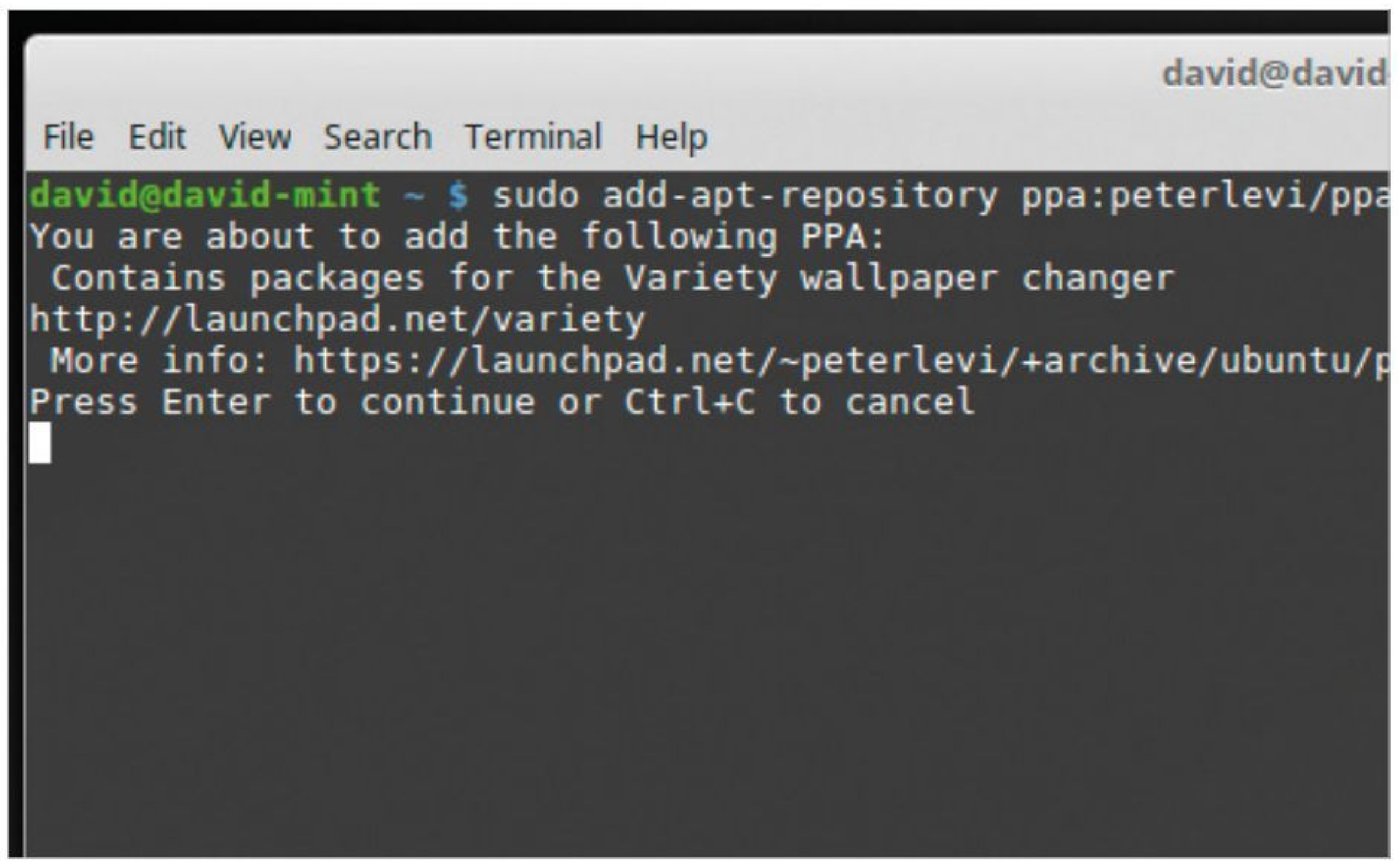
```
david@david-mint ~ $ sudo apt-get install stella
```

STEP 3 You need to enter `y` to confirm the installation, which will take up around 5.5MB of storage in the system. Once Stella is installed, you can see once again that Mint has automatically created the Games category in the Menu as well as the app shortcut.



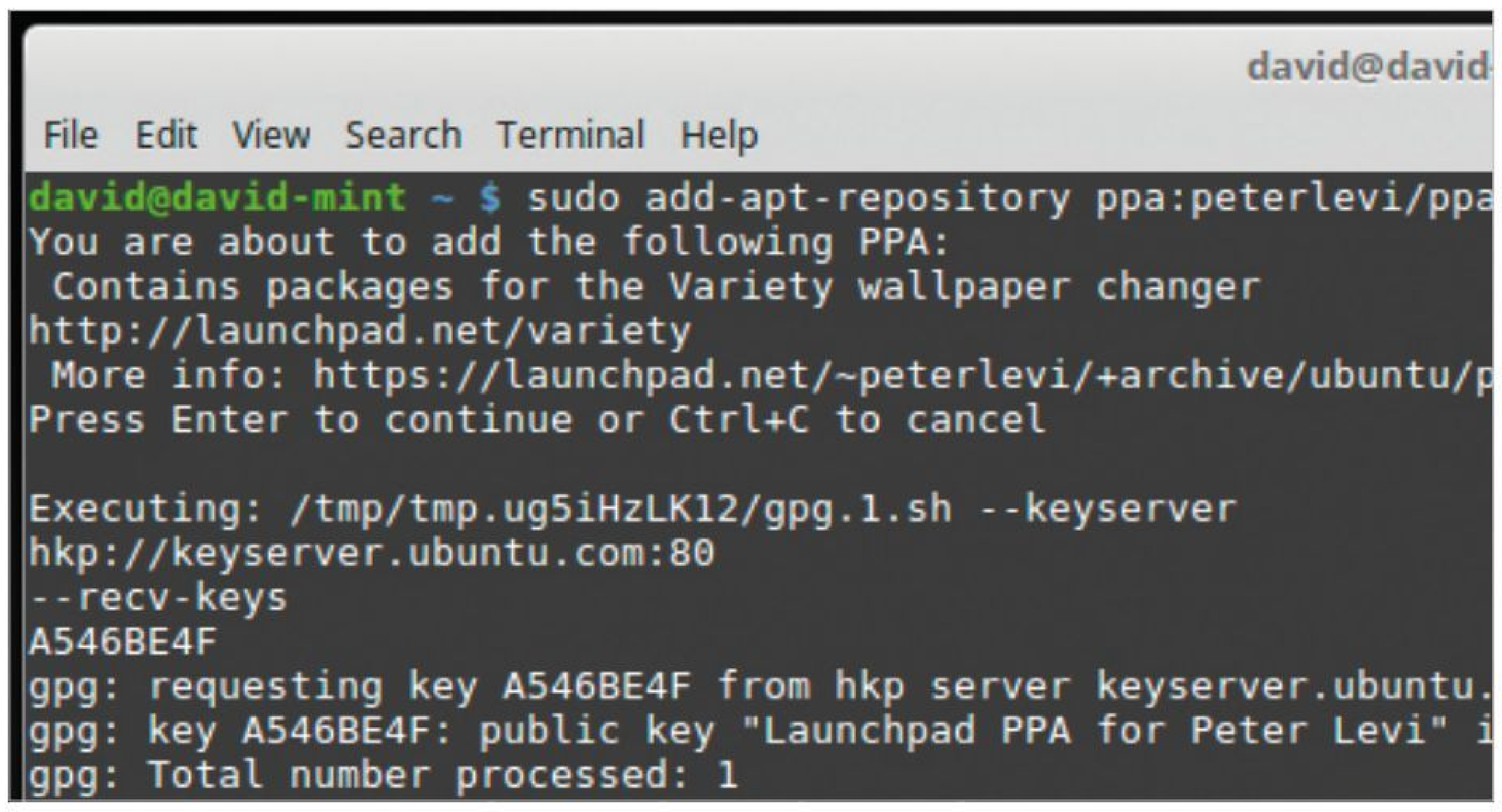
```
david@david-mint ~ $ sudo apt-get install stella
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libsdl2-2.0-0 libsndio6.1
Suggested packages:
  sndiod
The following NEW packages will be installed
  libsdl2-2.0-0 libsndio6.1 stella
0 to upgrade, 3 to newly install, 0 to remove and 0 not to upgrade.
Need to get 0 B/1,583 kB of archives.
After this operation, 5,591 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Selecting previously unselected package libsndio6.1:amd64.
(Reading database ... 204448 files and directories currently installed.)
Preparing to unpack .../libsndio6.1_1.1.0-2_amd64.deb ...
Unpacking libsndio6.1:amd64 (1.1.0-2) ...
Selecting previously unselected package libsdl2-2.0-0:amd64.
Preparing to unpack .../libsdl2-2.0-0_2.0.4+dfsg1-2ubuntu2_amd64.deb ...
Unpacking libsdl2-2.0-0:amd64 (2.0.4+dfsg1-2ubuntu2) ...
Selecting previously unselected package stella.
Preparing to unpack .../stella_4.7.1-1_amd64.deb ...
Unpacking stella (4.7.1-1) ...
Processing triggers for libc-bin (2.23-0ubuntu7) ...
Processing triggers for doc-base (0.10.7) ...
Processing 1 added doc-base file...
Registering documents with scrollkeeper...
Processing triggers for bamfdaemon (0.5.3~bzr0+16.04.20160824-0ubuntu1) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils (0.22-1ubuntu5.1) ...
Processing triggers for gnome-menus (3.13.3-6ubuntu3.1) ...
Processing triggers for mime-support (3.59ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.15-0ubuntu1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libsndio6.1:amd64 (1.1.0-2) ...
Setting up libsdl2-2.0-0:amd64 (2.0.4+dfsg1-2ubuntu2) ...
Setting up stella (4.7.1-1) ...
Processing triggers for libc-bin (2.23-0ubuntu7) ...
david@david-mint ~ $ 
```

STEP 4 Sometimes, when installing software, you need to add the app's Repository. The repository, or repo, is simply the remote server location where the software is held, along with all its dependencies (the vital libraries and such it needs to function). Start by typing in this: `sudo add-apt-repository ppa:peterlevi/ppa`. Press Enter when asked to add the PPA (Personal Package Archive).



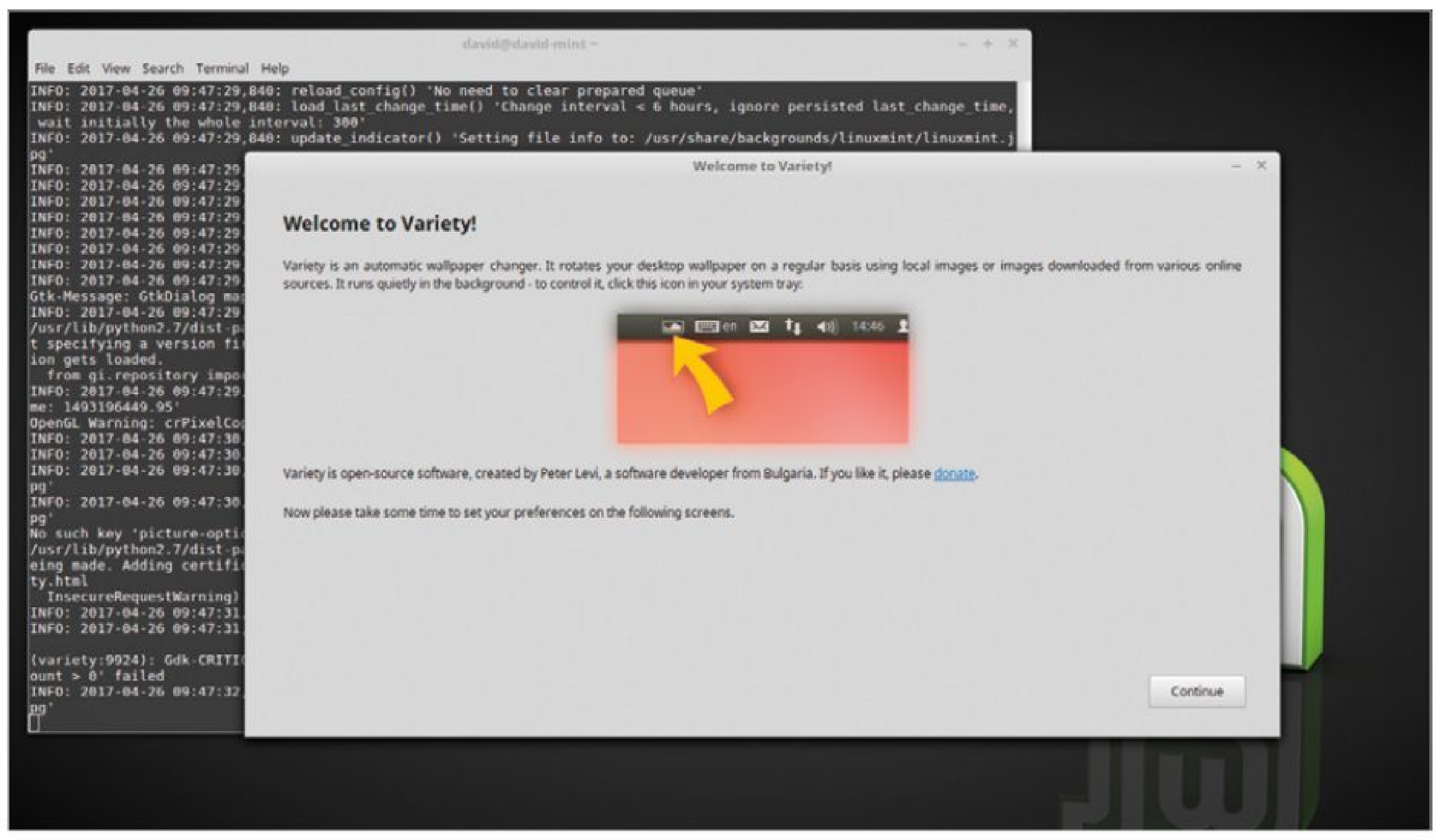
```
david@david-mint ~ $ sudo add-apt-repository ppa:peterlevi/ppa
You are about to add the following PPA:
 Contains packages for the Variety wallpaper changer
http://launchpad.net/variety
 More info: https://launchpad.net/~peterlevi/+archive/ubuntu/p
Press Enter to continue or Ctrl+C to cancel
```

STEP 5 This will add the repo for the app Variety Wallpaper Changer, an Ubuntu-based app that works in Mint and changes the wallpaper automatically. Now that the repo is added, enter: `sudo apt-get update`, to update the new information and add the contents of the repo to the package database.



```
david@david-mint ~ $ sudo add-apt-repository ppa:peterlevi/ppa
You are about to add the following PPA:
 Contains packages for the Variety wallpaper changer
http://launchpad.net/variety
 More info: https://launchpad.net/~peterlevi/+archive/ubuntu/p
Press Enter to continue or Ctrl+C to cancel

Executing: /tmp/tmp.ug5iHzLK12/gpg.1.sh --keyserver
hkp://keyserver.ubuntu.com:80
--recv-keys
A546BE4F
gpg: requesting key A546BE4F from hkp server keyserver.ubuntu.
gpg: key A546BE4F: public key "Launchpad PPA for Peter Levi" i
gpg: Total number processed: 1
```

STEP 6 Now to install Variety, enter: `sudo apt-get install variety`. Press `y` to confirm and accept the installation, and to continue with the install. Once installed you can type `variety` into the Terminal to run the app.



```
INFO: 2017-04-26 09:47:29,840: reload_config() 'No need to clear prepared queue'
INFO: 2017-04-26 09:47:29,840: load_last_change_time() 'Change interval < 6 hours, ignore persisted last_change_time,
 wait initially the whole interval: 300'
INFO: 2017-04-26 09:47:29,840: update_indicator() 'Setting file info to: /usr/share/backgrounds/linuxmint/linuxmint.j
pg'
```

Welcome to Variety!

Variety is an automatic wallpaper changer. It rotates your desktop wallpaper on a regular basis using local images or images downloaded from various online sources. It runs quietly in the background - to control it, click this icon in your system tray:

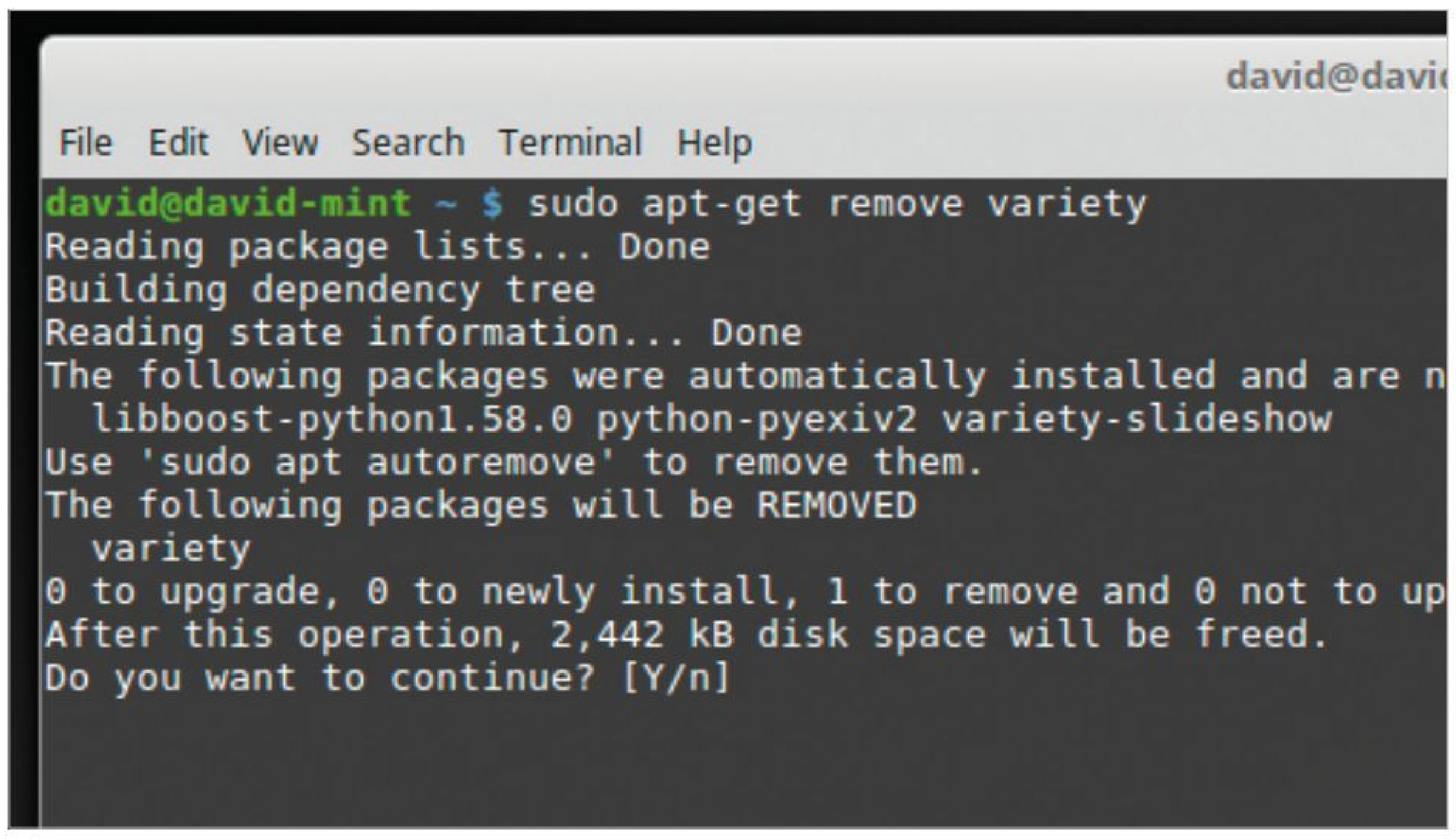
Variety is open-source software, created by Peter Levi, a software developer from Bulgaria. If you like it, please donate.

Now please take some time to set your preferences on the following screens.

REMOVING APPS

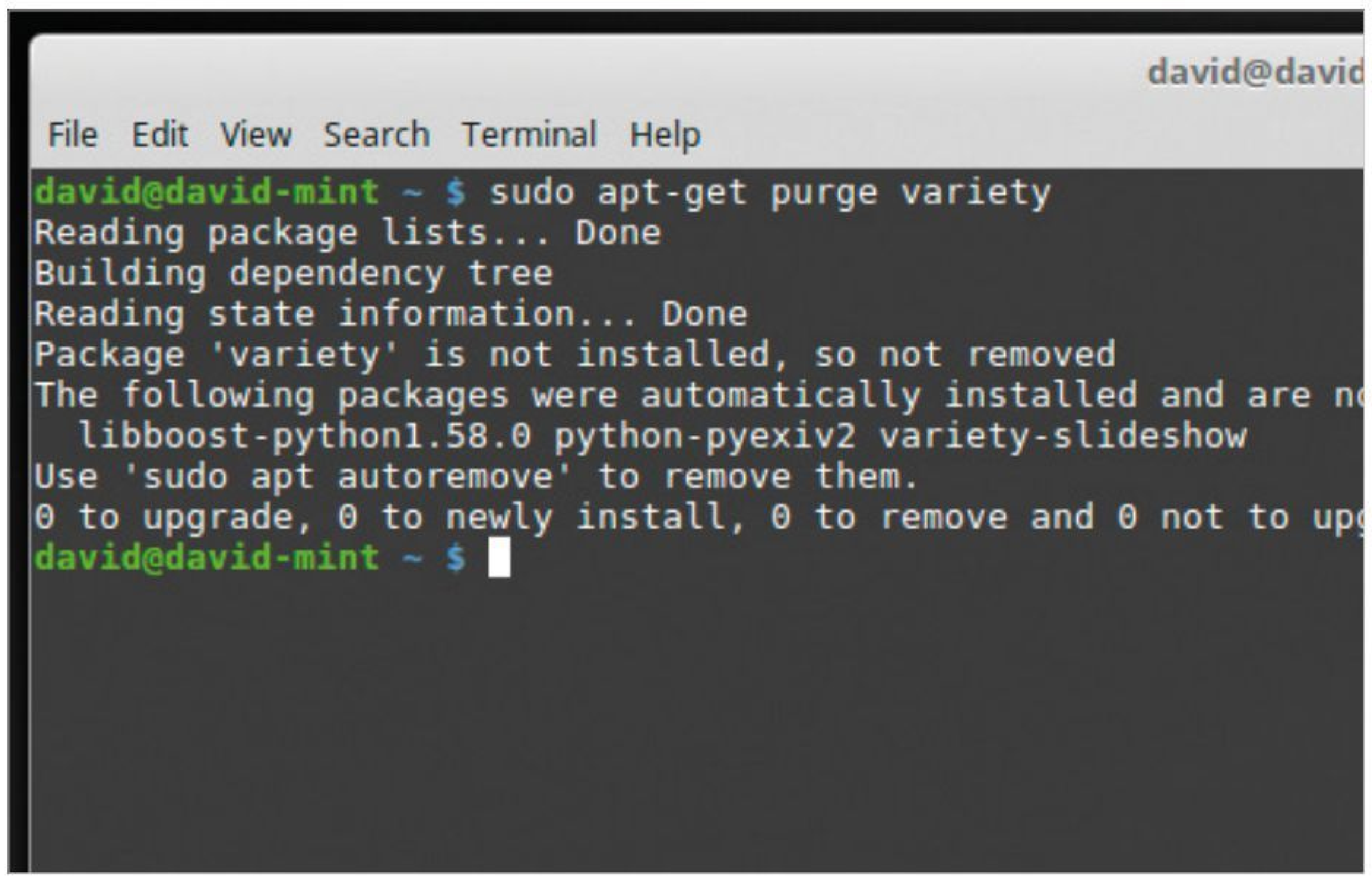
As well as installing apps, the `apt` command can also be used to remove any apps and, as we've seen in the previous tutorial, help keep the system tidy.

STEP 1 To uninstall or remove the Variety app, enter the following: `sudo apt-get remove variety`. Enter `y` to continue with the uninstall of the app; notice also that you're informed of how much space you're freeing up on the hard drive as a result of removing the app.



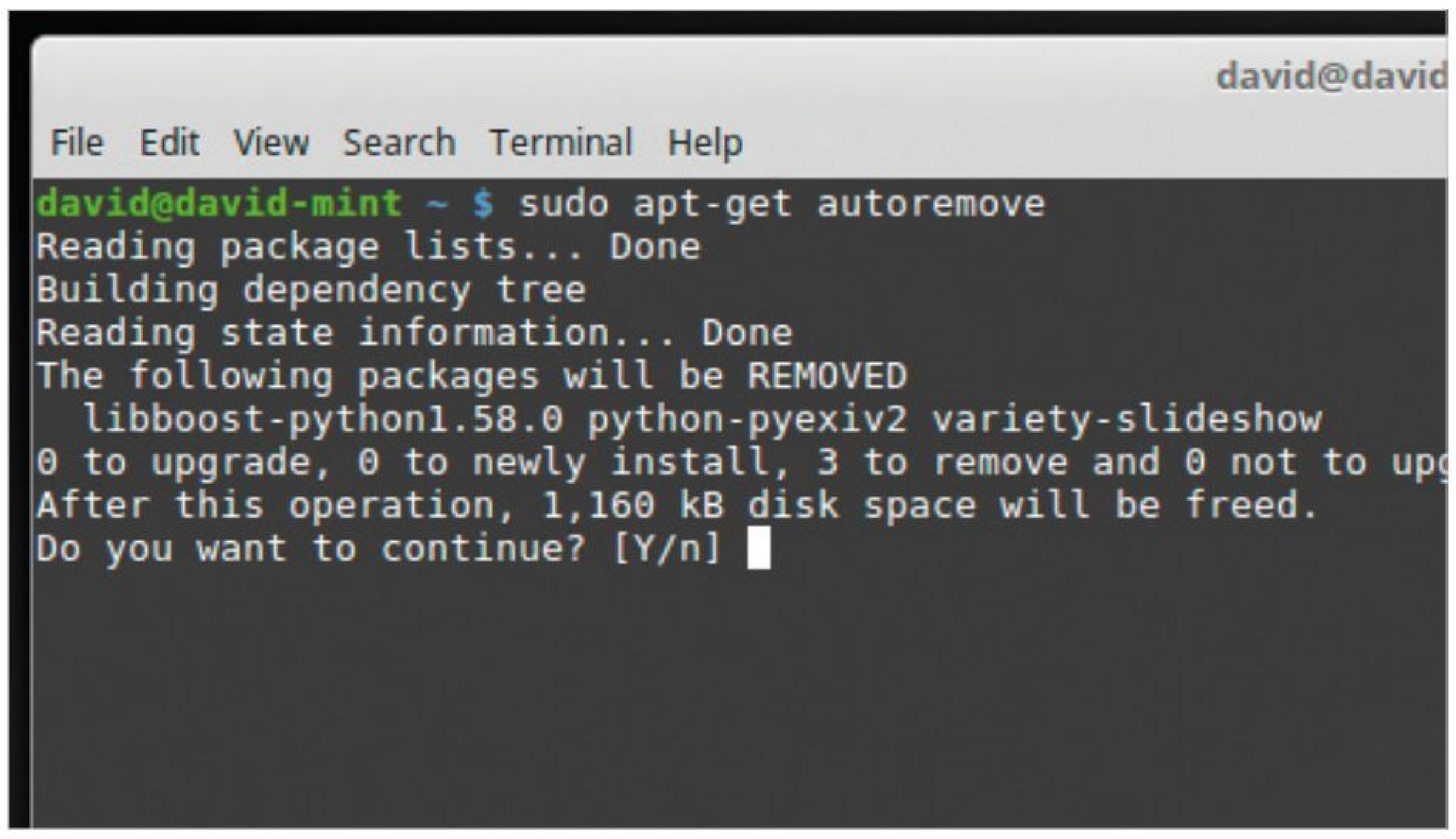
```
david@david-mint ~ $ sudo apt-get remove variety
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are n
  libboost-python1.58.0 python-pyexiv2 variety-slideshow
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED
  variety
0 to upgrade, 0 to newly install, 1 to remove and 0 not to up
After this operation, 2,442 kB disk space will be freed.
Do you want to continue? [Y/n]
```

STEP 2 While the apt-get remove command will uninstall an app, it doesn't get rid of the extra clutter that comes with an app, such as configuration and library files. To completely remove the clutter, enter: `sudo apt-get purge variety`.



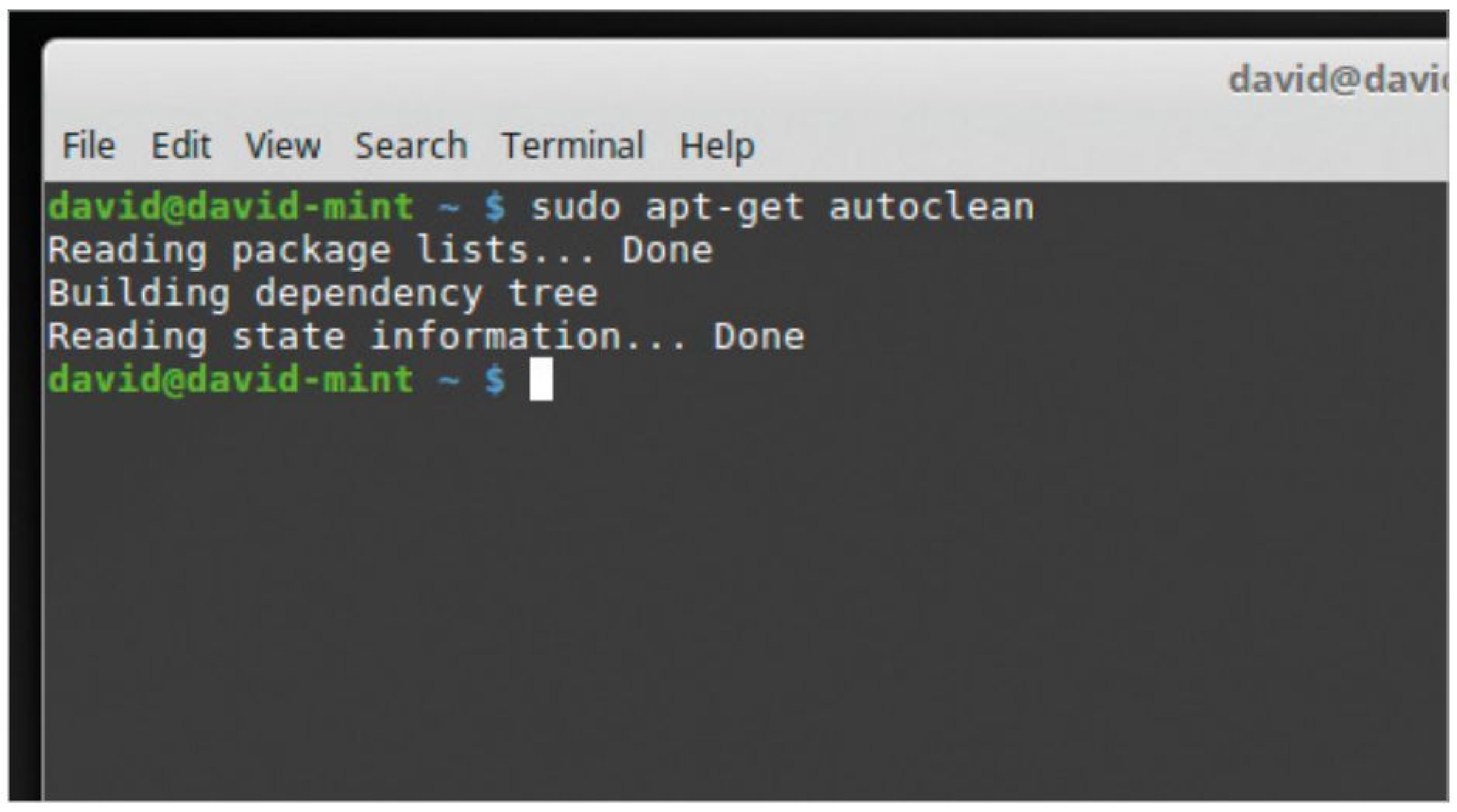
```
david@david-mint ~ $ sudo apt-get purge variety
Reading package lists... Done
Building dependency tree
Reading state information... Done
Package 'variety' is not installed, so not removed
The following packages were automatically installed and are no
  libboost-python1.58.0 python-pyexiv2 variety-slideshow
Use 'sudo apt autoremove' to remove them.
0 to upgrade, 0 to newly install, 0 to remove and 0 not to upg
david@david-mint ~ $ 
```

STEP 3 As you remove apps from the system you are informed that some packages that were automatically installed are no longer required. You have already seen in the previous tutorial, how to tidy things up with the following command: `sudo apt-get autoremove`, followed by `y` to accept the process.



```
david@david-mint ~ $ sudo apt-get autoremove
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages will be REMOVED
  libboost-python1.58.0 python-pyexiv2 variety-slideshow
0 to upgrade, 0 to newly install, 3 to remove and 0 not to upg
After this operation, 1,160 kB disk space will be freed.
Do you want to continue? [Y/n] 
```

STEP 4 Finally, to tidy up all the non-used packages in the system, and to remove elements that the autoremove command didn't, you can enter: `sudo apt-get autoclean`. These last few steps are vital to keeping your Linux Mint setup in good working order, and to trim off the unnecessary excess caused by installations and upgrades.



```
david@david-mint ~ $ sudo apt-get autoclean
Reading package lists... Done
Building dependency tree
Reading state information... Done
david@david-mint ~ $ 
```

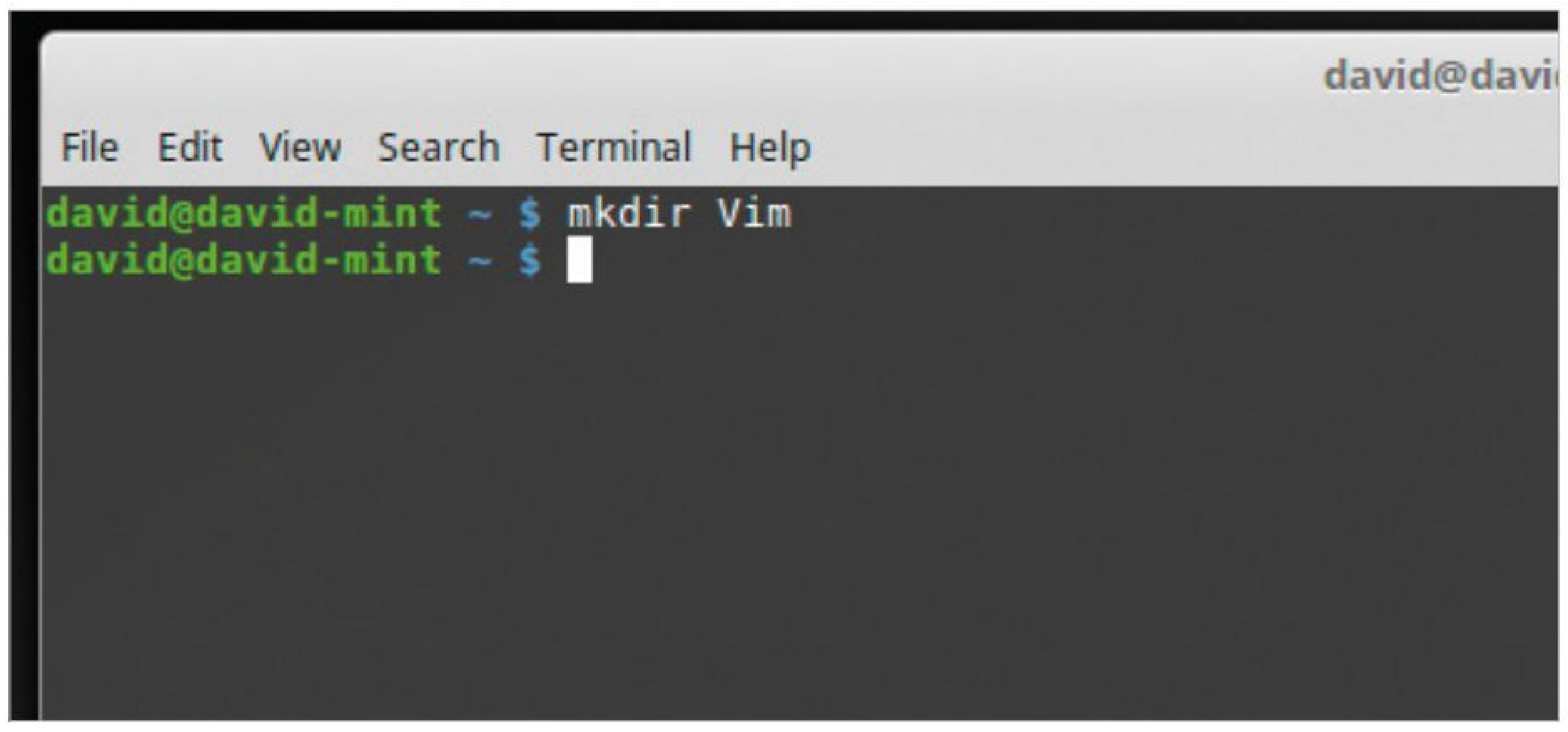
Install Apps via the Terminal – Part 2

Most of the time you get to install apps from the Terminal using the methods we looked at in the previous pages. However, sometimes an app demands a little more work. This means installing an app from its source code, which isn't as scary as it first sounds.

FROM THE SOURCE

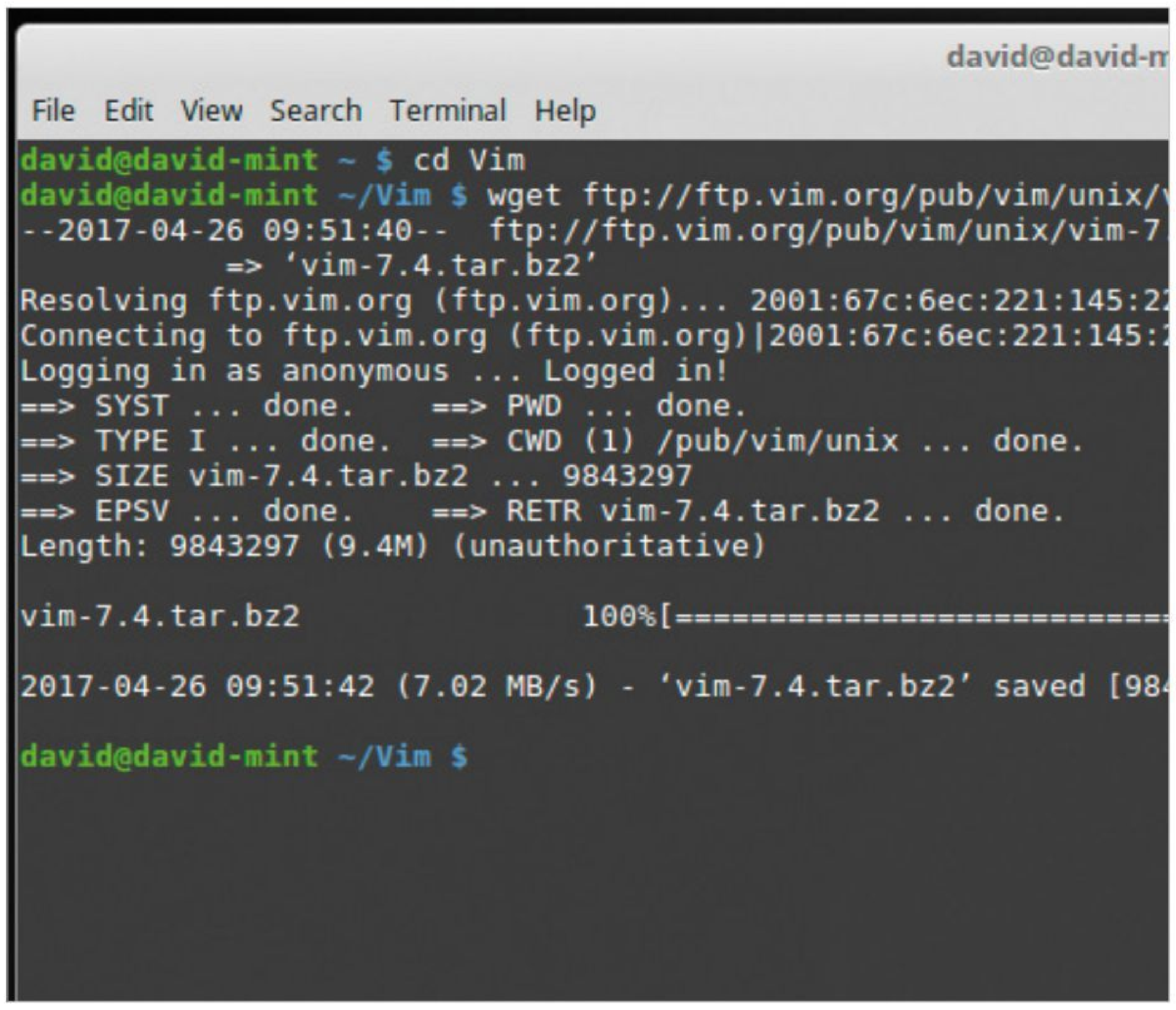
The commands you need to become familiar with here are Configure, Make and Install. There are a lot of apps that use installing from source, so it's certainly a skill worth investing time in.

STEP 1 Source code files for Linux usually come in the form of .TAR.GZ or .TAR.BZ2. Both are compressed files holding all the core files needed to 'make' the app. Start off this tutorial by creating a new folder in Home: mkdir Vim.



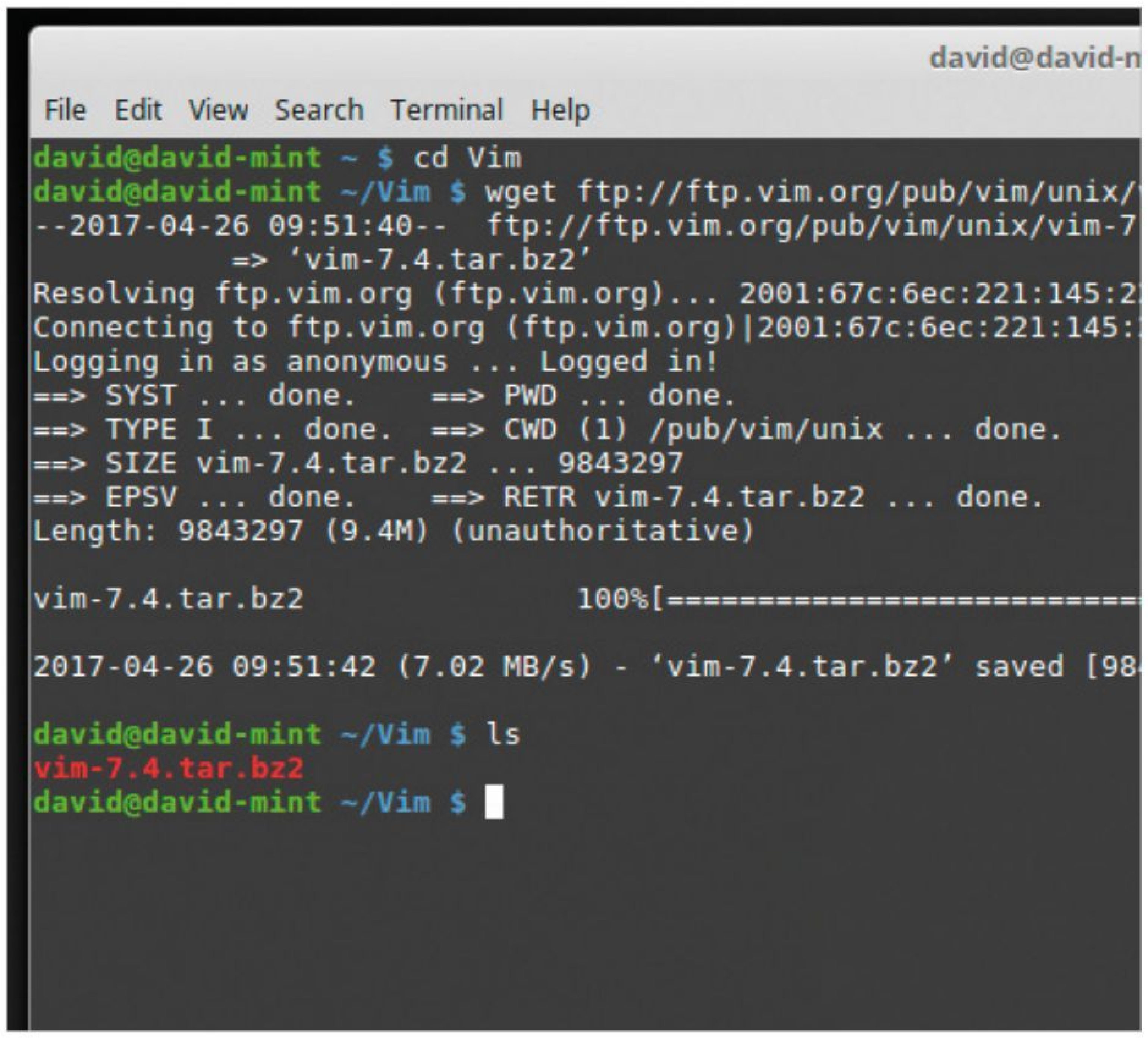
```
david@david-mint ~ $ mkdir Vim
david@david-mint ~ $ █
```

STEP 2 Vim, by the way, is an advanced text editor which we'll use as an example to install. Enter the new folder, `cd Vim`, then from within the new Vim folder, enter the following command into the Terminal: `wget ftp://ftp.vim.org/pub/vim/unix/vim-7.4.tar.bz2`.



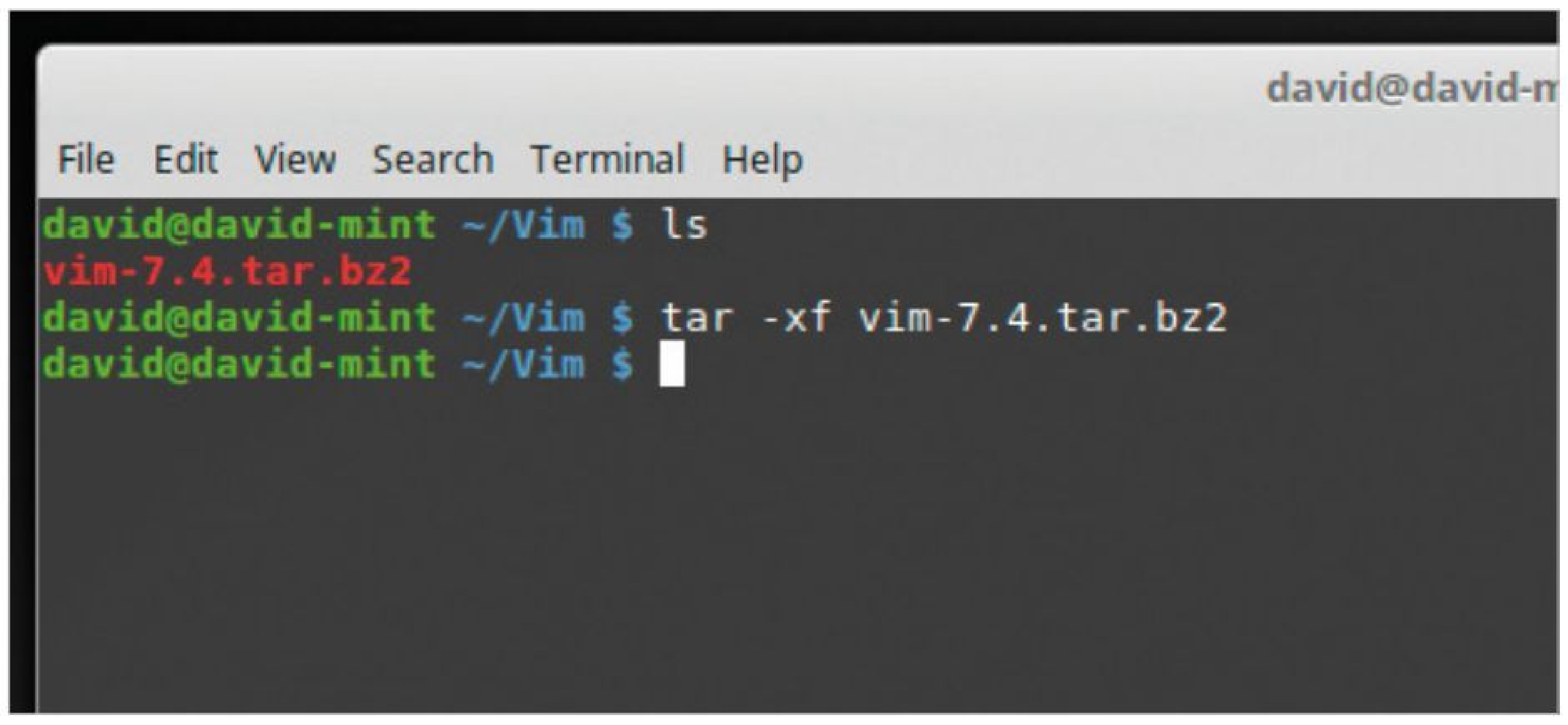
```
david@david-mint ~ $ cd Vim
david@david-mint ~/Vim $ wget ftp://ftp.vim.org/pub/vim/unix/
--2017-04-26 09:51:40--  ftp://ftp.vim.org/pub/vim/unix/vim-7
           => 'vim-7.4.tar.bz2'
Resolving ftp.vim.org (ftp.vim.org)... 2001:67c:6ec:221:145:2
Connecting to ftp.vim.org (ftp.vim.org)|2001:67c:6ec:221:145:
Logging in as anonymous ... Logged in!
==> SYST ... done.    ==> PWD ... done.
==> TYPE I ... done.  ==> CWD (1) /pub/vim/unix ... done.
==> SIZE vim-7.4.tar.bz2 ... 9843297
==> EPSV ... done.    ==> RETR vim-7.4.tar.bz2 ... done.
Length: 9843297 (9.4M) (unauthoritative)

vim-7.4.tar.bz2               100%[===========================

2017-04-26 09:51:42 (7.02 MB/s) - 'vim-7.4.tar.bz2' saved [98

david@david-mint ~/Vim $
```

STEP 3 The wget command retrieves content from the Internet, in this case the .BZ2 file for Vim. To check the file was downloaded successfully, enter: `ls`. According to Mint's file system colour key, the compressed file should be displayed in red.



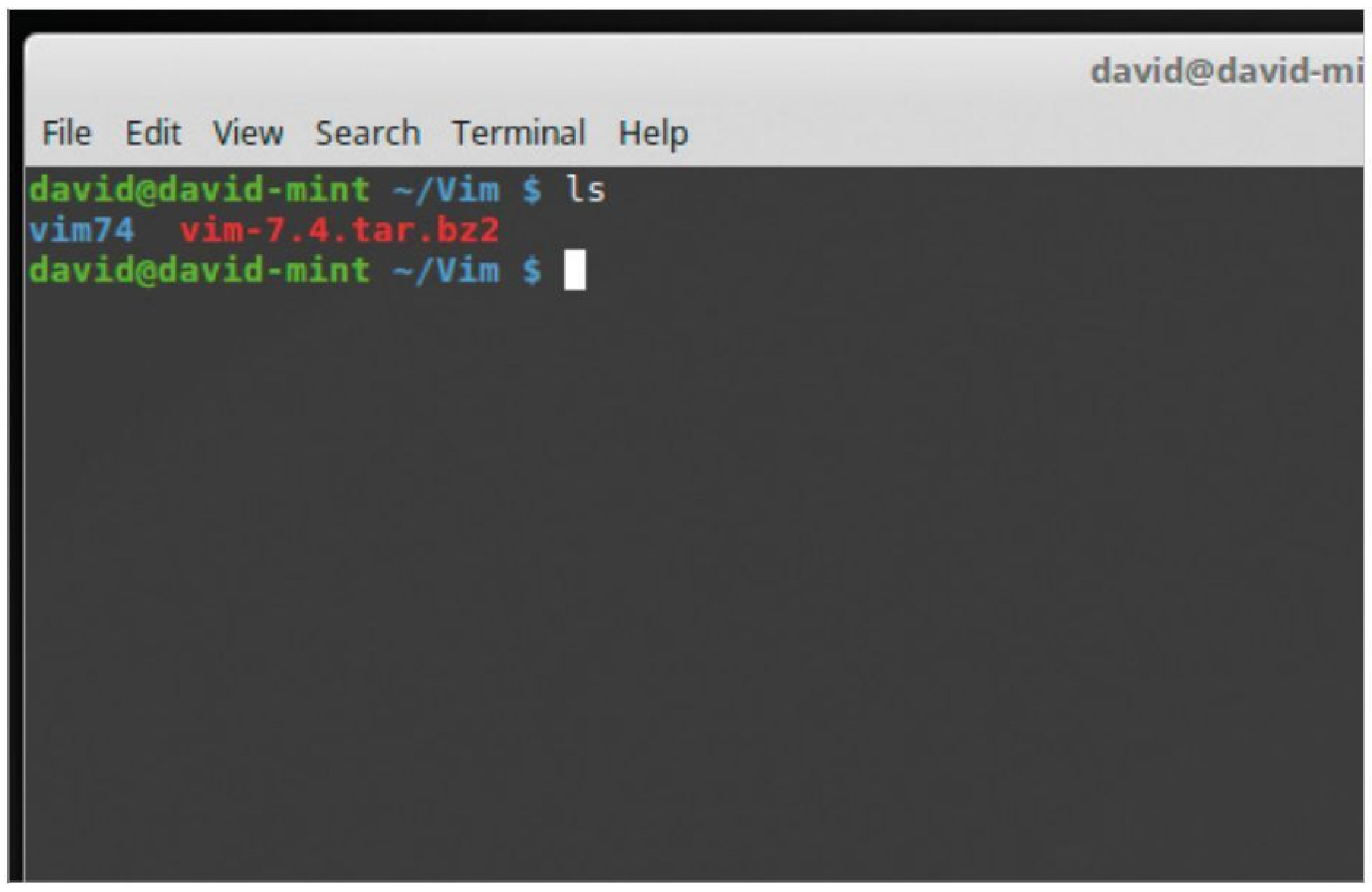
```
david@david-mint ~ $ cd Vim
david@david-mint ~/Vim $ wget ftp://ftp.vim.org/pub/vim/unix/
--2017-04-26 09:51:40--  ftp://ftp.vim.org/pub/vim/unix/vim-7
           => 'vim-7.4.tar.bz2'
Resolving ftp.vim.org (ftp.vim.org)... 2001:67c:6ec:221:145:2
Connecting to ftp.vim.org (ftp.vim.org)|2001:67c:6ec:221:145:
Logging in as anonymous ... Logged in!
==> SYST ... done.    ==> PWD ... done.
==> TYPE I ... done.  ==> CWD (1) /pub/vim/unix ... done.
==> SIZE vim-7.4.tar.bz2 ... 9843297
==> EPSV ... done.    ==> RETR vim-7.4.tar.bz2 ... done.
Length: 9843297 (9.4M) (unauthoritative)

vim-7.4.tar.bz2               100%[===========================

2017-04-26 09:51:42 (7.02 MB/s) - 'vim-7.4.tar.bz2' saved [98

david@david-mint ~/Vim $ ls
vim-7.4.tar.bz2
david@david-mint ~/Vim $ █
```

STEP 4 You need to uncompress the contents of the file now, so enter: `tar -xf vim-7.4.tar.bz2` into the Terminal. Note, you can type in: `tar -xf v` and press the Tab key to auto-fill the remaining file name.



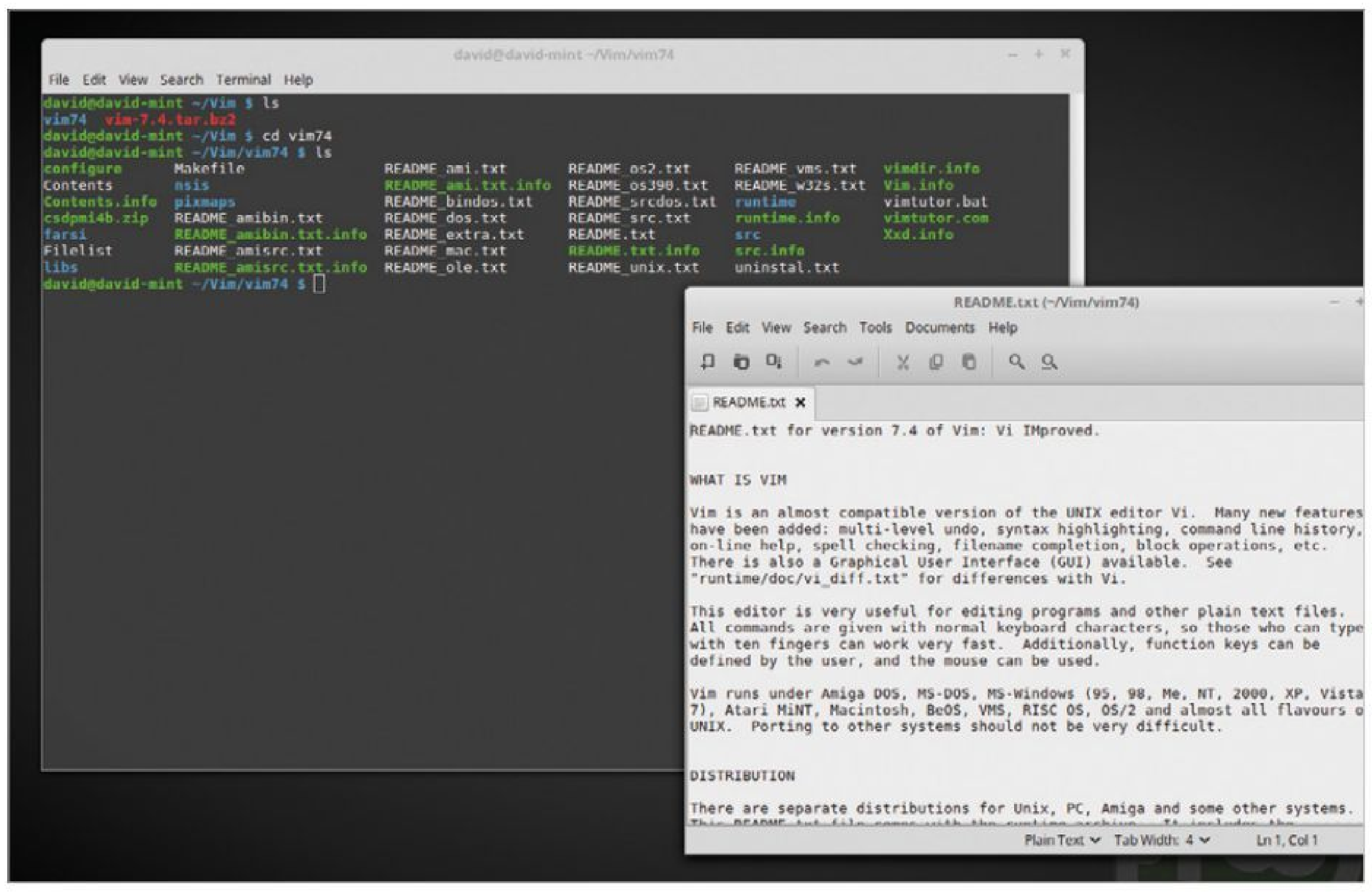
```
david@david-mint ~/Vim $ ls
vim-7.4.tar.bz2
david@david-mint ~/Vim $ tar -xf vim-7.4.tar.bz2
david@david-mint ~/Vim $ █
```

STEP 5 If you enter `ls` again, you may notice that a new folder has been created: vim74, in light blue text representing a folder in Mint. It's always handy to create root folders for the main app, then as you upgrade apps through this method, the individual versions will each have their own folder.



```
david@david-mint ~/Vim $ ls
vim74  vim-7.4.tar.bz2
david@david-mint ~/Vim $ 
```

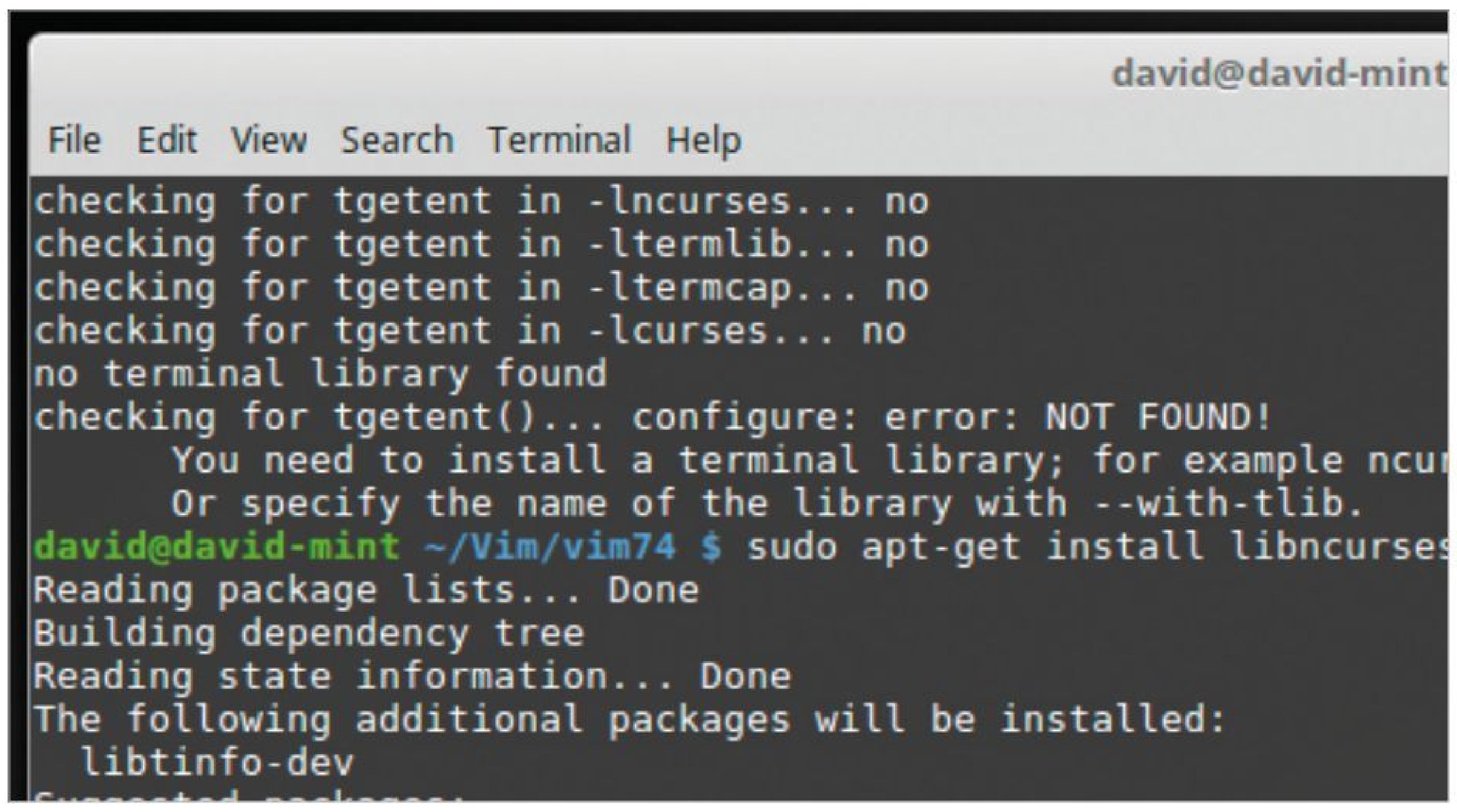
STEP 6 Type in: `cd vim74` to enter the folder and `ls` again to view its contents. There probably will be a fair number of files present; most are the app's core files, whilst others will be labelled README or INSTALL. It's always wise to read these files first as they provide valuable information regarding the installation.


david@david-mint ~/Vim/vim74
File Edit View Search Terminal Help
README.txt (~/Vim/vim74)
File Edit View Search Tools Documents Help
README.txt
Plain Text
Tab Width: 4
Ln 1, Col 1

```
david@david-mint ~/Vim $ ls
vim74  vim-7.4.tar.bz2
david@david-mint ~/Vim $ cd vim74
david@david-mint ~/Vim/vim74 $ ls
configure      Makefile                README_ami.txt       README_os2.txt      README_vms.txt   vimdir.info
Contents       nsis                    README_ami.txt.info  README_os390.txt    README_w32s.txt  Vim.info
Contents.info  pixmaps                 README_bindos.txt    README_srcdos.txt   runtime          vimtutor.bat
csdpmi4b.zip   README_amibin.txt       README_dos.txt       README_src.txt      runtime.info     vimtutor.com
farsi          README_amibin.txt.info  README_extra.txt     README.txt          src              Xxd.info
Filelist       README_amisrc.txt       README_mac.txt       README.txt.info     src.info
libs           README_amisrc.txt.info  README_ole.txt       README_unix.txt     uninstal.txt
david@david-mint ~/Vim/vim74 $ 
```

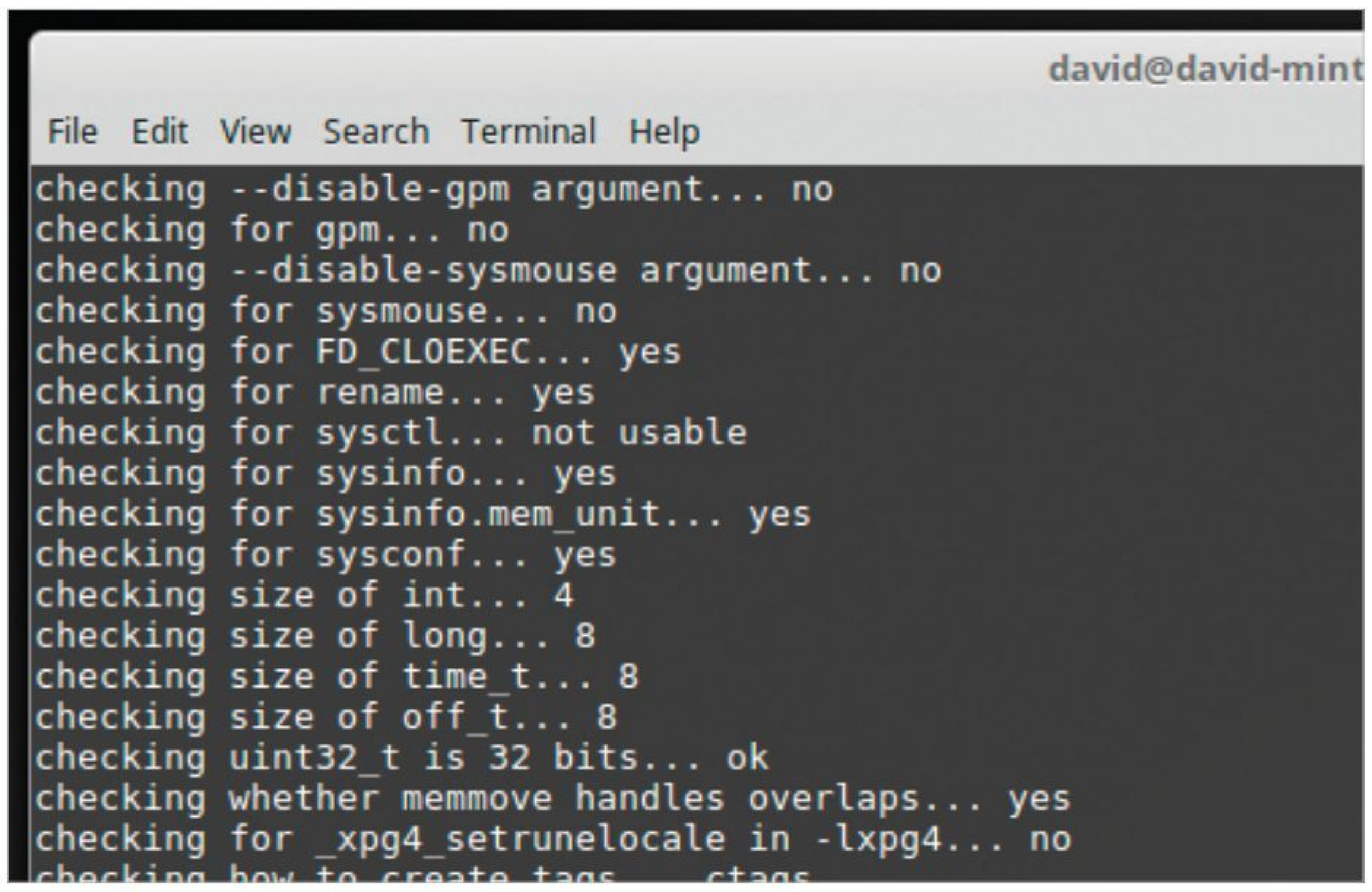
```
README.txt for version 7.4 of Vim: Vi IMproved.


WHAT IS VIM

Vim is an almost compatible version of the UNIX editor Vi.  Many new features
have been added: multi-level undo, syntax highlighting, command line history,
on-line help, spell checking, filename completion, block operations, etc.
There is also a Graphical User Interface (GUI) available.  See
"runtime/doc/vi_diff.txt" for differences with Vi.

This editor is very useful for editing programs and other plain text files.
All commands are given with normal keyboard characters, so those who can type
with ten fingers can work very fast.  Additionally, function keys can be
defined by the user, and the mouse can be used.

Vim runs under Amiga DOS, MS-DOS, MS-Windows (95, 98, Me, NT, 2000, XP, Vista
7), Atari MiNT, Macintosh, BeOS, VMS, RISC OS, OS/2 and almost all flavours o
UNIX.  Porting to other systems should not be very difficult.


DISTRIBUTION

There are separate distributions for Unix, PC, Amiga and some other systems.
```

STEP 7 The first part of the installation requires you to enter: `./configure` into the Terminal. The ./configure command will check your system for any missing dependencies associated with the app. In our case, the third-party app Ncurses was missing. We need to install that with: `sudo apt-get install libncurses5-dev libncursesw5-dev`.



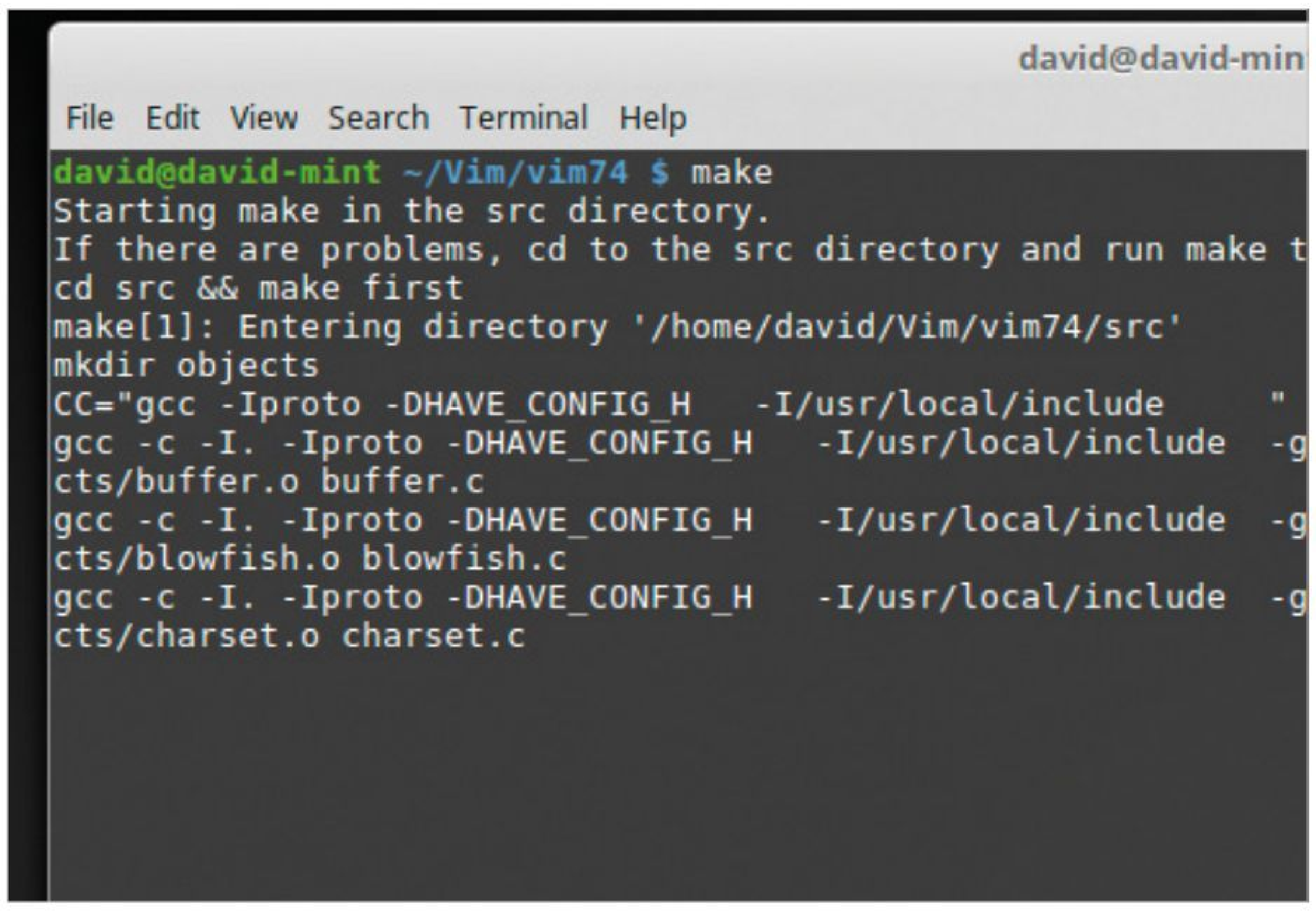
```
checking for tgetent in -lncurses... no
checking for tgetent in -ltermlib... no
checking for tgetent in -ltermcap... no
checking for tgetent in -lcurses... no
no terminal library found
checking for tgetent()... configure: error: NOT FOUND!
      You need to install a terminal library; for example ncur
      Or specify the name of the library with --with-tlib.
david@david-mint ~/Vim/vim74 $ sudo apt-get install libncurses
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libtinfo-dev
Suggested packages:
```

STEP 8 You may need to keep installing new dependencies, depending on the app. After each new dependency is installed, re-run `./configure` and when it doesn't report back with an error you can continue to the next stage of the installation. Note, you may need to search online for some error messages.



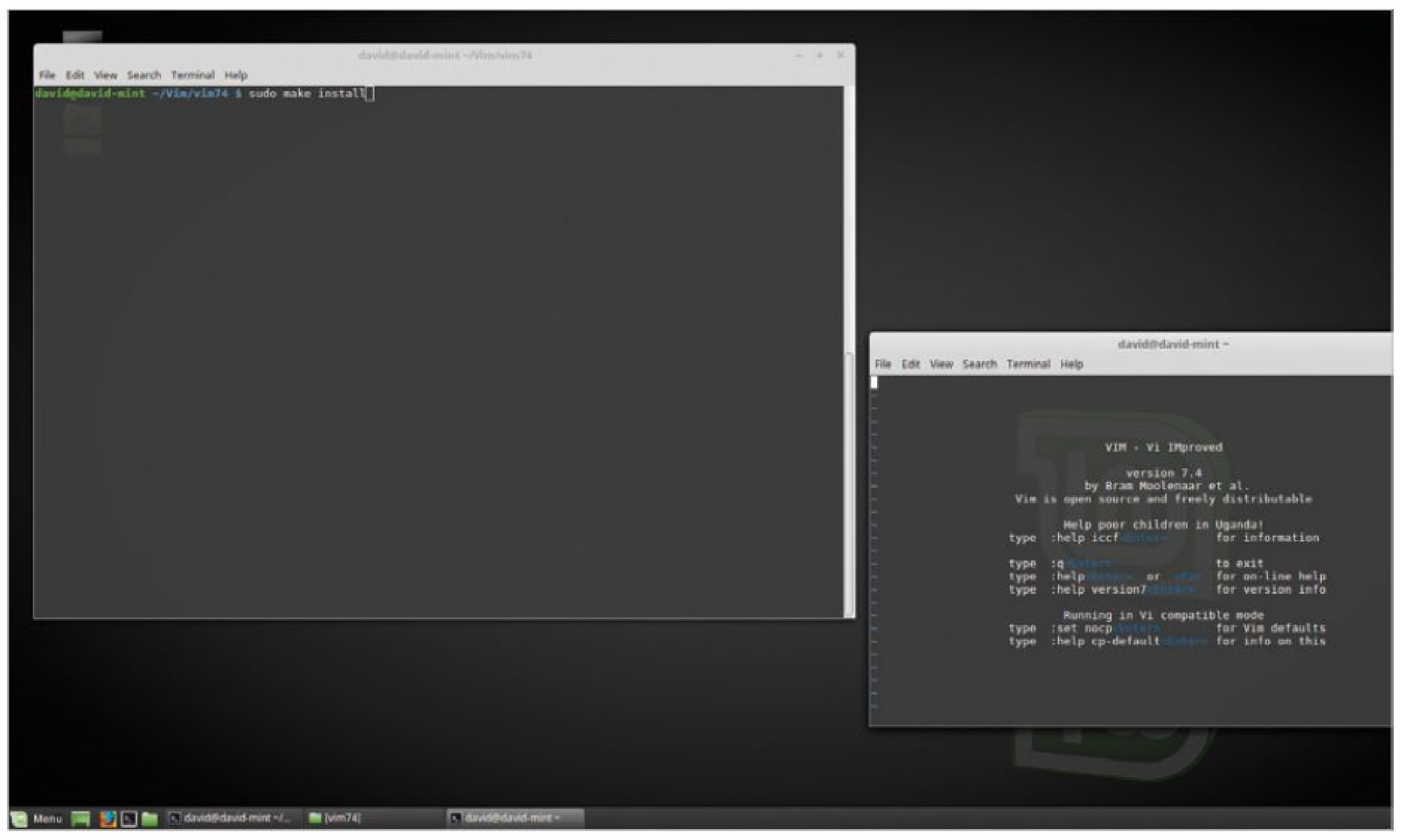
```
checking --disable-gpm argument... no
checking for gpm... no
checking --disable-sysmouse argument... no
checking for sysmouse... no
checking for FD_CLOEXEC... yes
checking for rename... yes
checking for sysctl... not usable
checking for sysinfo... yes
checking for sysinfo.mem_unit... yes
checking for sysconf... yes
checking size of int... 4
checking size of long... 8
checking size of time_t... 8
checking size of off_t... 8
checking uint32_t is 32 bits... ok
checking whether memmove handles overlaps... yes
checking for _xpg4_setrunelocale in -lxpg4... no
checking how to create tags... ctags
```

STEP 9 With a successful `./configure`, the system will create a Makefile. This needs to be 'made' by entering: `make` into the Terminal. This may take a while, depending on the size of the app.



```
david@david-mint ~/Vim/vim74 $ make
Starting make in the src directory.
If there are problems, cd to the src directory and run make t
cd src && make first
make[1]: Entering directory '/home/david/Vim/vim74/src'
mkdir objects
CC="gcc -Iproto -DHAVE_CONFIG_H   -I/usr/local/include     "
gcc -c -I. -Iproto -DHAVE_CONFIG_H   -I/usr/local/include   -g
cts/buffer.o buffer.c
gcc -c -I. -Iproto -DHAVE_CONFIG_H   -I/usr/local/include   -g
cts/blowfish.o blowfish.c
gcc -c -I. -Iproto -DHAVE_CONFIG_H   -I/usr/local/include   -g
cts/charset.o charset.c
```

STEP 10 Finally, you need to enter: `sudo make install` into the Terminal. This will install the app and make it ready for use in the system. When complete you can execute the app, in this case by entering: `vim` into the Terminal or searching for it via the Dash.


File Edit View Search Terminal Help
david@david-mint ~
File Edit View Search Terminal Help
Menu

```
david@david-mint ~/Vim/vim74 $ sudo make install
```

```
                VIM - Vi IMproved

                 version 7.4
             by Bram Moolenaar et al.
       Vim is open source and freely distributable

              Help poor children in Uganda!
     type  :help iccf<Enter>       for information

     type  :q<Enter>               to exit
     type  :help<Enter>  or  <F1>  for on-line help
     type  :help version7<Enter>   for version info

              Running in Vi compatible mode
     type  :set nocp<Enter>        for Vim defaults
     type  :help cp-default<Enter> for info on this
```

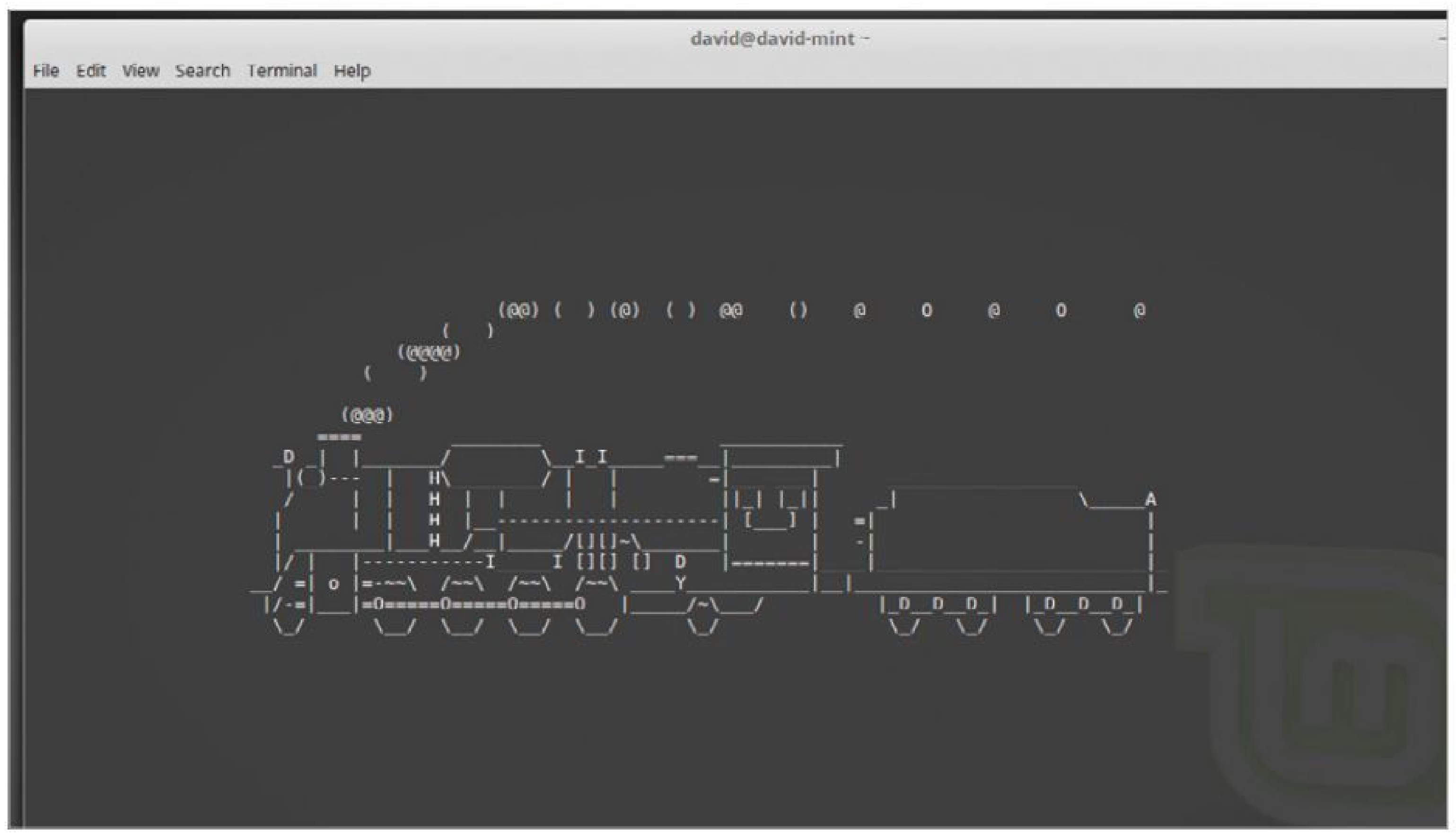
Fun Things to do in the Terminal

Despite the seriousness of an operating system, the Linux community are certainly no strangers to a bit of fun. Over the years the developers have created and inserted all manner of fun and odd elements into the Terminal.

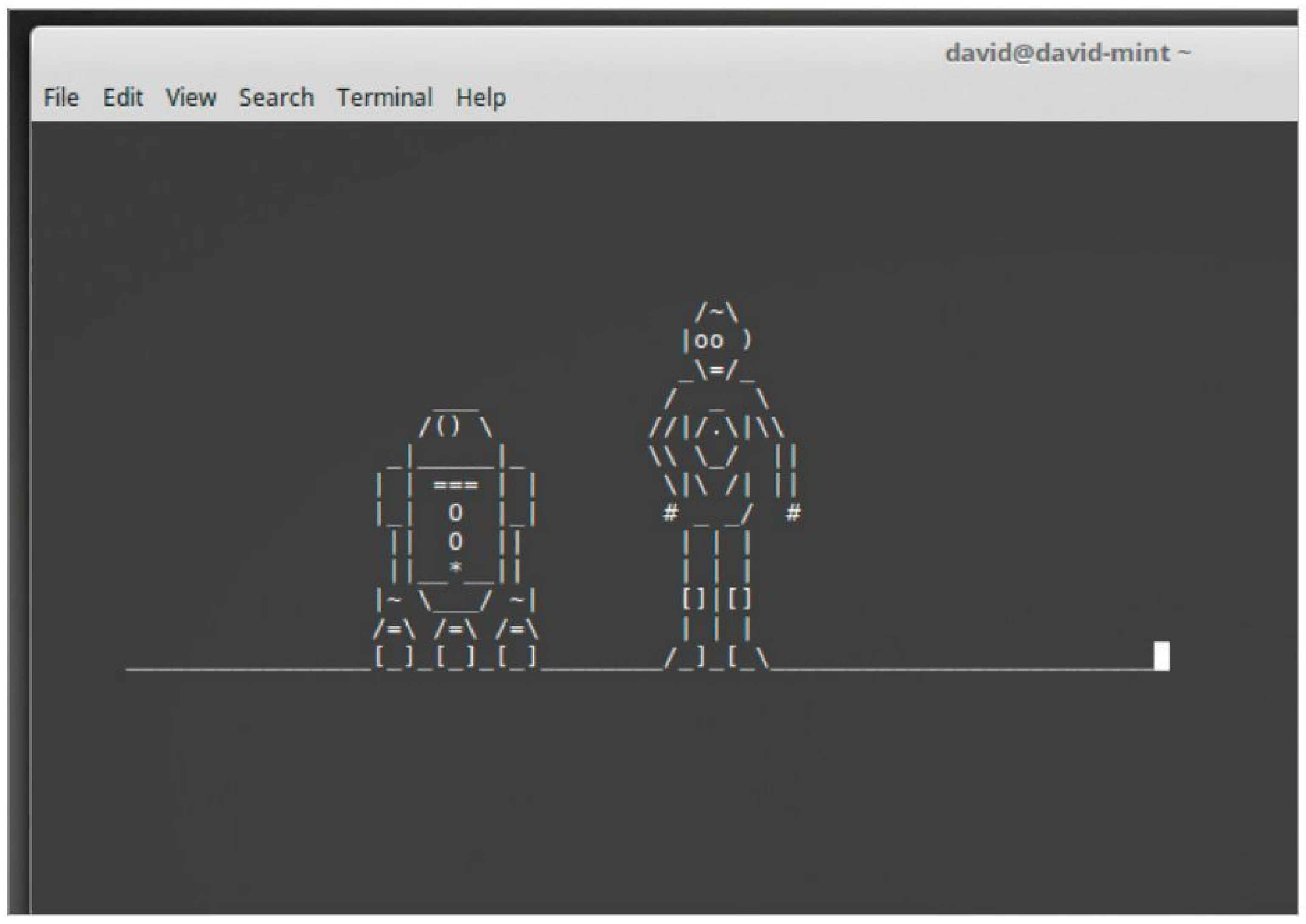
TERMINAL FUN

You'll be working exclusively in the Terminal for these next two sections, so open the Terminal and start warming your fingers up. After all, all work and no play… as the saying goes.

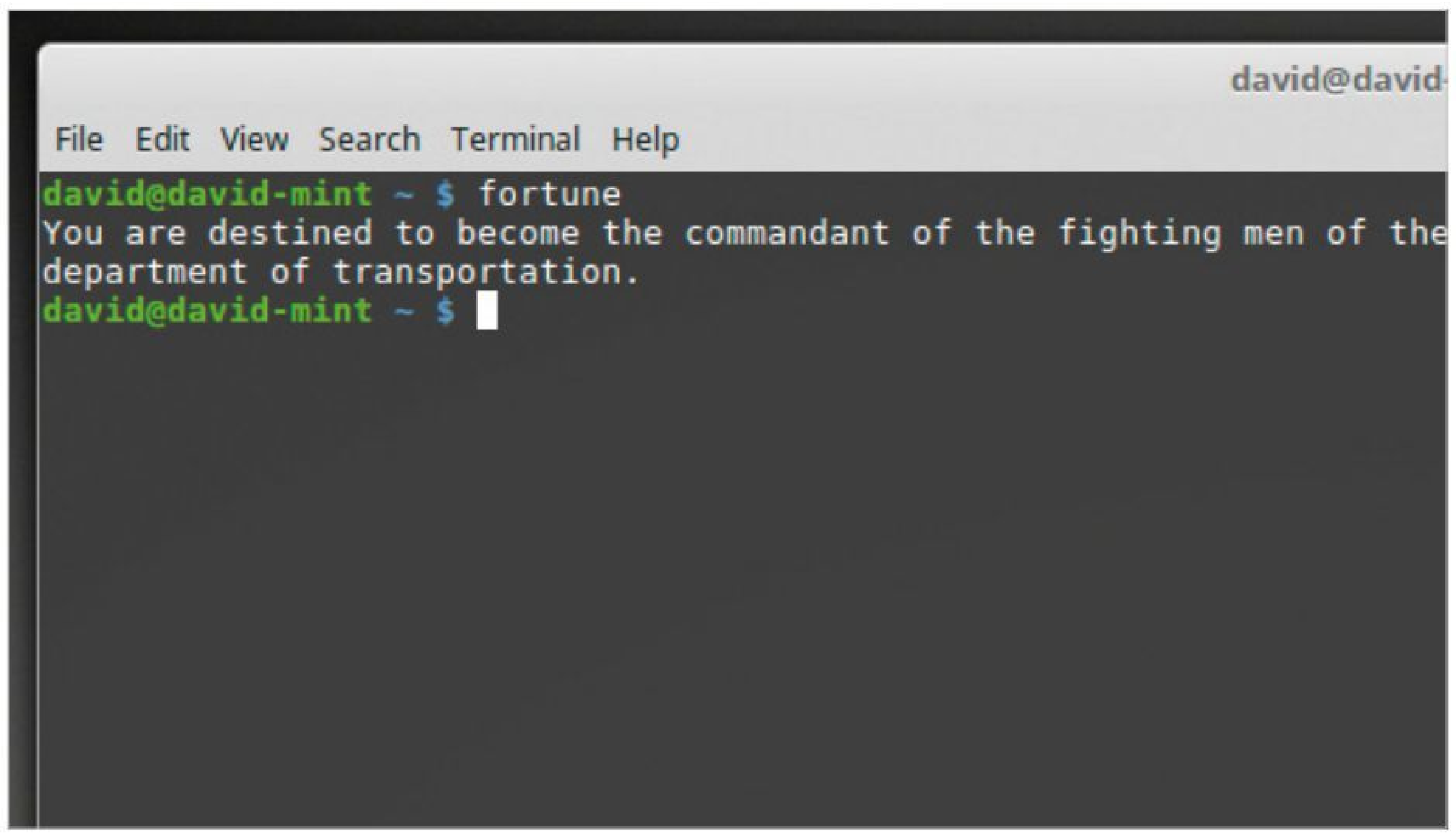
STEP 1 The first command we're going to use is `sl`, it's not installed by default so enter: `sudo apt-get install sl`. The command can be run with `sl` and when executed will display a Steam Locomotive travelling across the screen (hence 'sl'). Entering `LS`, note the upper case, also works.



STEP 2 Fans of Star Wars even get a fix when it comes to the Terminal. By linking to a remote server via the telnet command, you can watch Episode IV: A New Hope being played out, albeit in ASCII. To view this spectacle, enter: `telnet towel.blinkenlights.nl`.

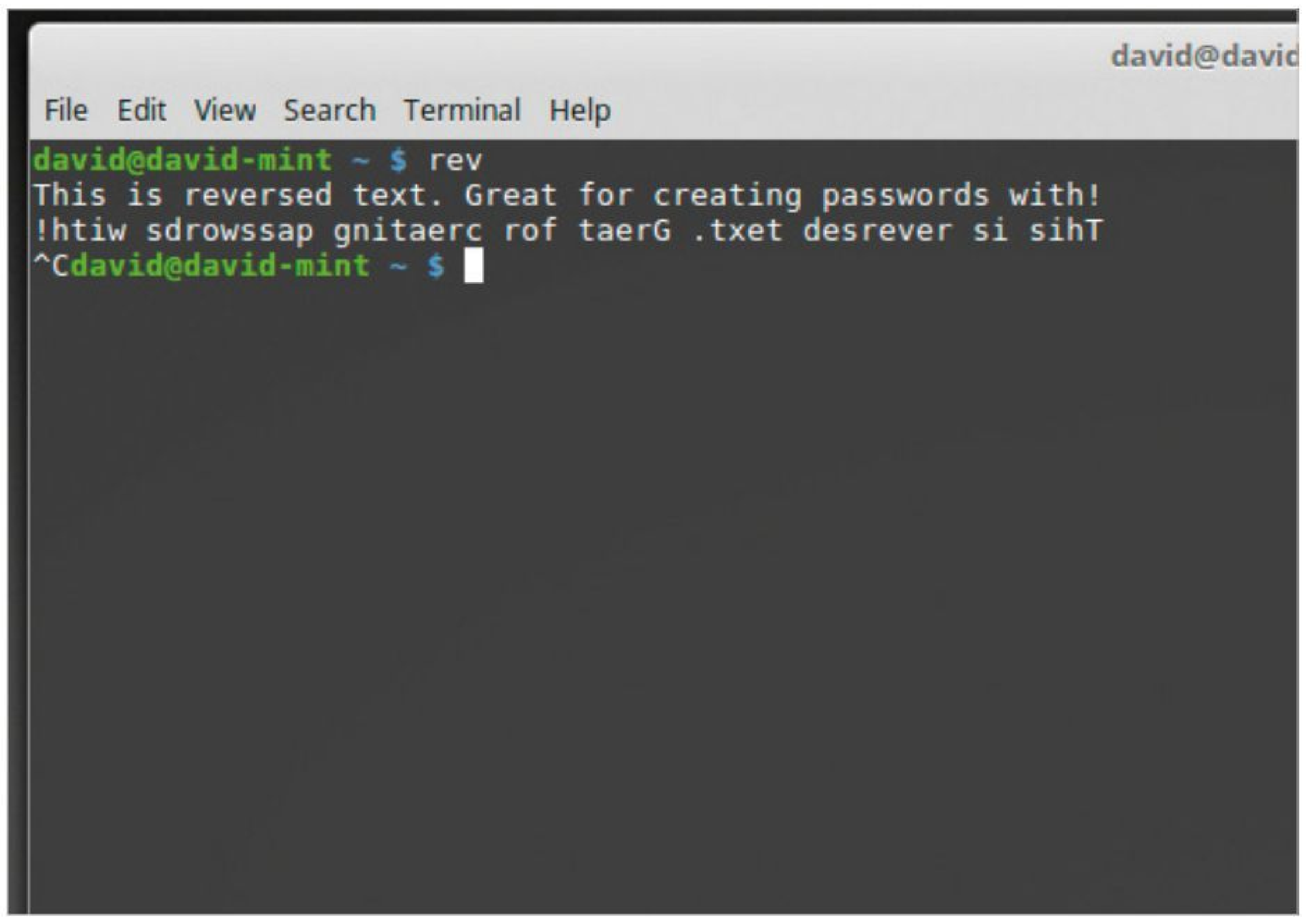


STEP 3 If you've ever fancied having the computer read a random fortune out to you, then you're in luck. Most distros require you to install the fortune app, however Linux Mint differs somewhat by having it already preloaded. All you need to do is enter the command `fortune` into the Terminal, and enjoy.



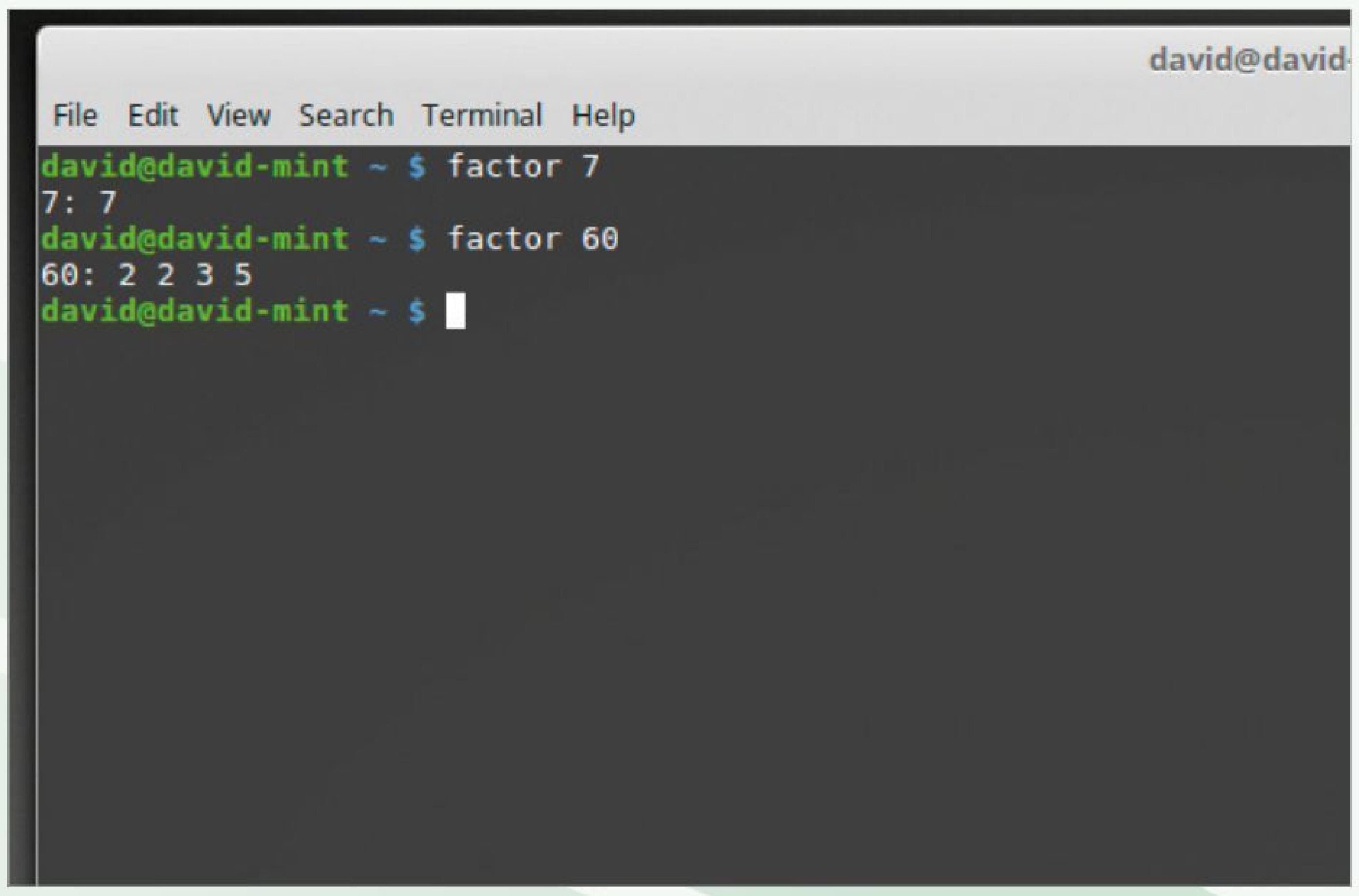
```
david@david-mint ~ $ fortune
You are destined to become the commandant of the fighting men of the
department of transportation.
david@david-mint ~ $
```

STEP 4 The `rev` command is certainly interesting, and at first what seems a quite useless addition to the OS. However, it can be used to create some seemingly unbreakable passwords. Enter: `rev`, now type some text, when you press Enter, everything you typed in will be reversed. Press Ctrl+C to exit.



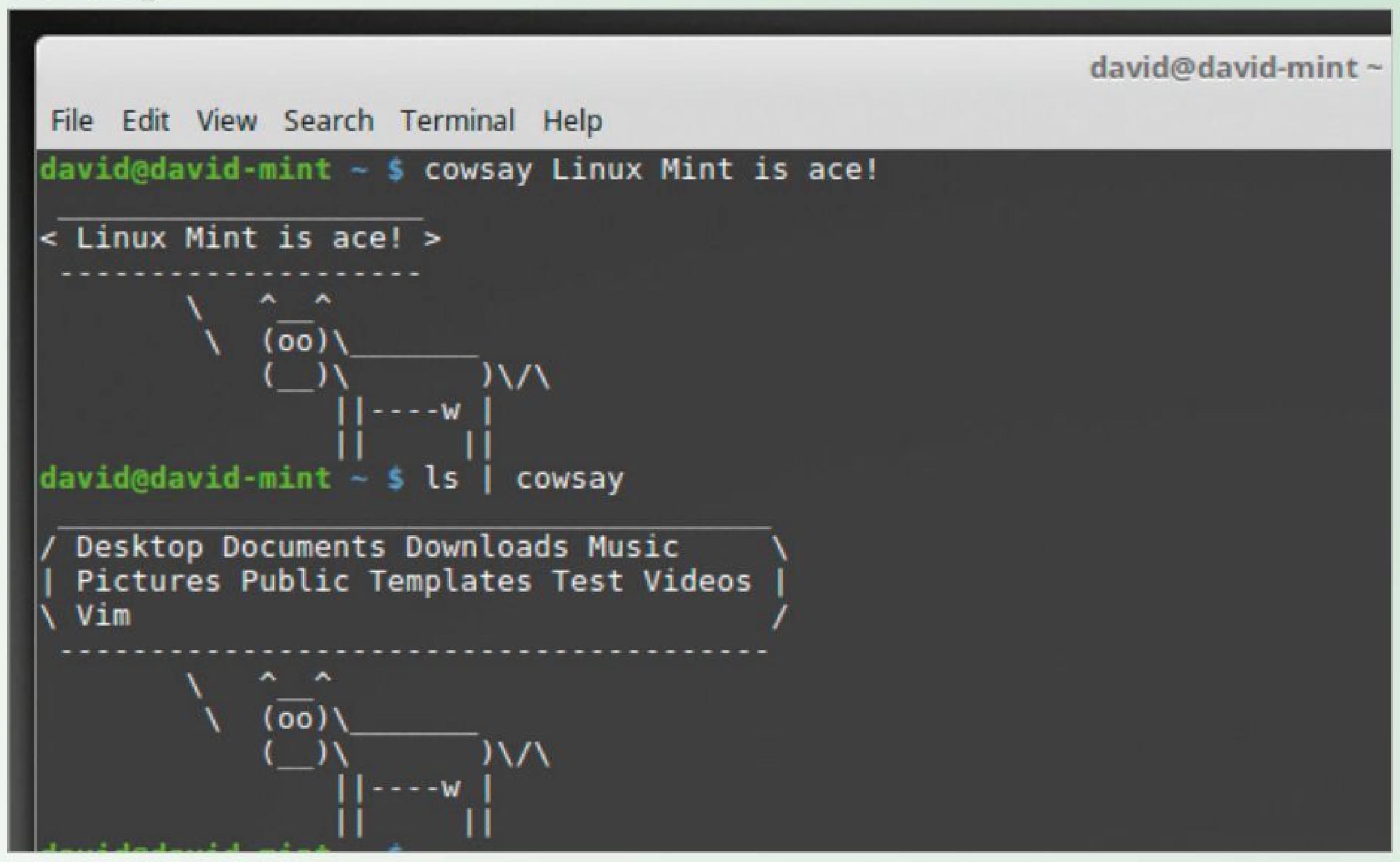
```
david@david-mint ~ $ rev
This is reversed text. Great for creating passwords with!
!htiw sdrowssap gnitaerc rof taerG .txet desrever si sihT
^Cdavid@david-mint ~ $
```

STEP 5 If you're stuck trying to work out all the possible factors for any particular number, simply enter `factor` followed by the number. For example, `factor 7` doesn't offer much output, whereas `factor 60` displays more.


david@david-
File Edit View Search Terminal Help

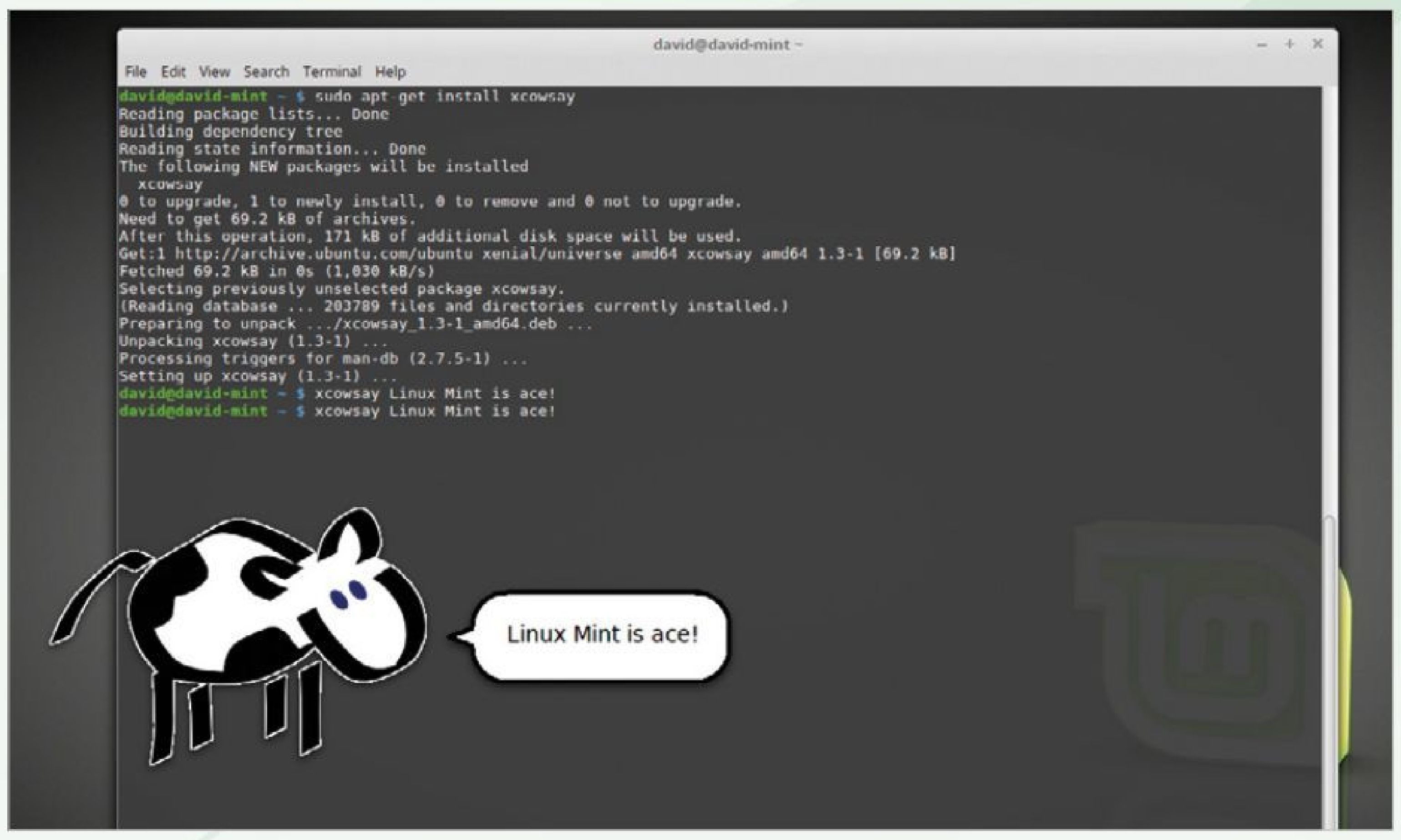
```
david@david-mint ~ $ factor 7
7: 7
david@david-mint ~ $ factor 60
60: 2 2 3 5
david@david-mint ~ $
```

STEP 6 There's a fine line between the rather cool and really quite weird. Having an ASCII cow repeat text to you could potentially fall in the latter. Enter `cowsay` followed by any text you want, such as: `cowsay Linux Mint is ace!`. In fact, you can even output the `ls` command through the cow, by entering: `ls | cowsay`.


david@david-mint ~
File Edit View Search Terminal Help

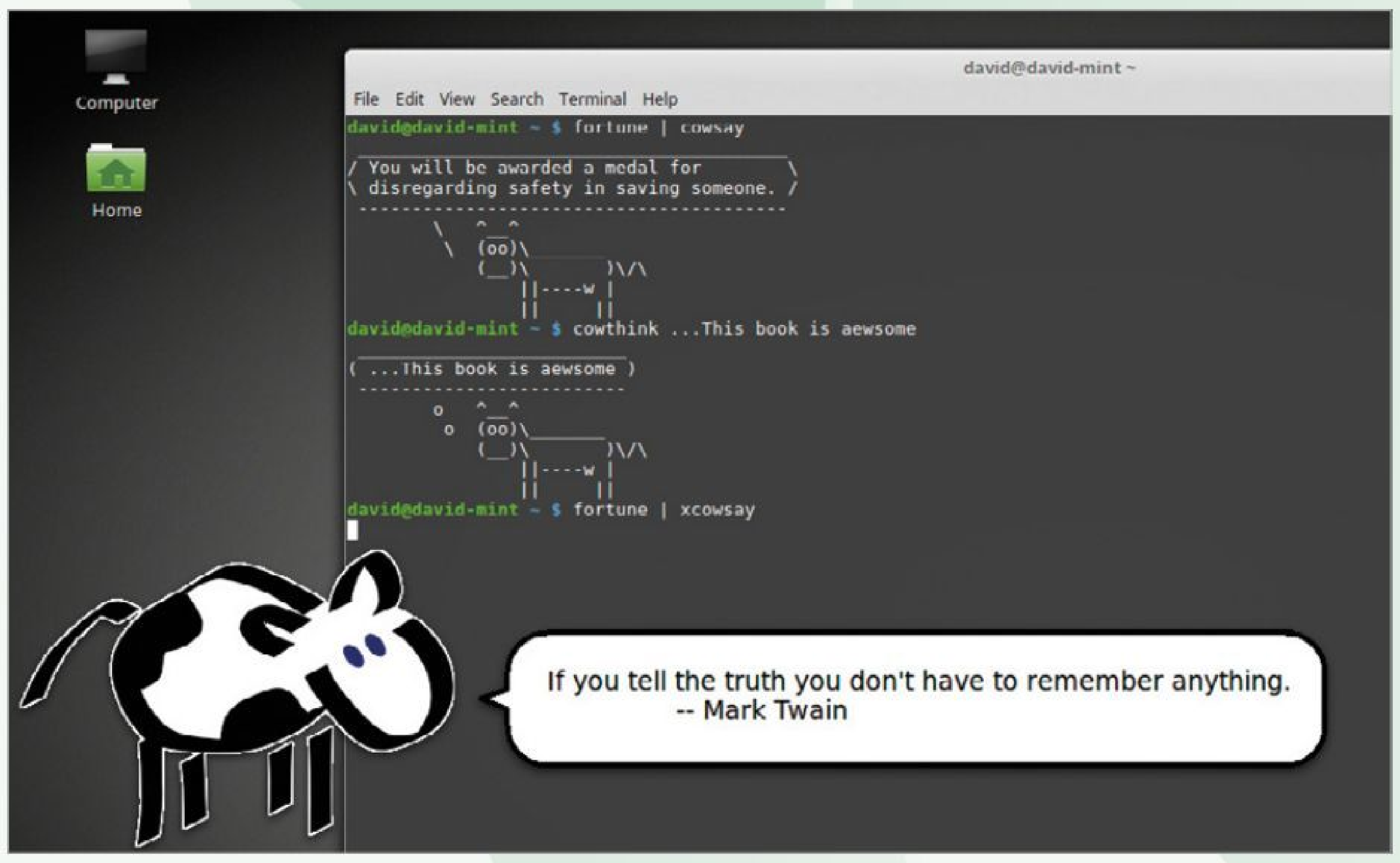
```
david@david-mint ~ $ cowsay Linux Mint is ace!
 ____________________
< Linux Mint is ace! >
 --------------------
        \   ^__^
         \  (oo)\_______
            (__)\       )\/\
                ||----w |
                ||     ||
david@david-mint ~ $ ls | cowsay
 _________________________________________
/ Desktop Documents Downloads Music       \
| Pictures Public Templates Test Videos  |
\ Vim                                     /
 -----------------------------------------
        \   ^__^
         \  (oo)\_______
            (__)\       )\/\
                ||----w |
                ||     ||
```

STEP 7 To further the cow element, there's even a graphical, i.e. non-Terminal, cow available. Install it with: `sudo apt-get install xcowsay`, then when it's installed enter something similar to cowsay, such as: `xcowsay Linux Mint is ace!`.


david@david-mint ~
File Edit View Search Terminal Help
Linux Mint is ace!

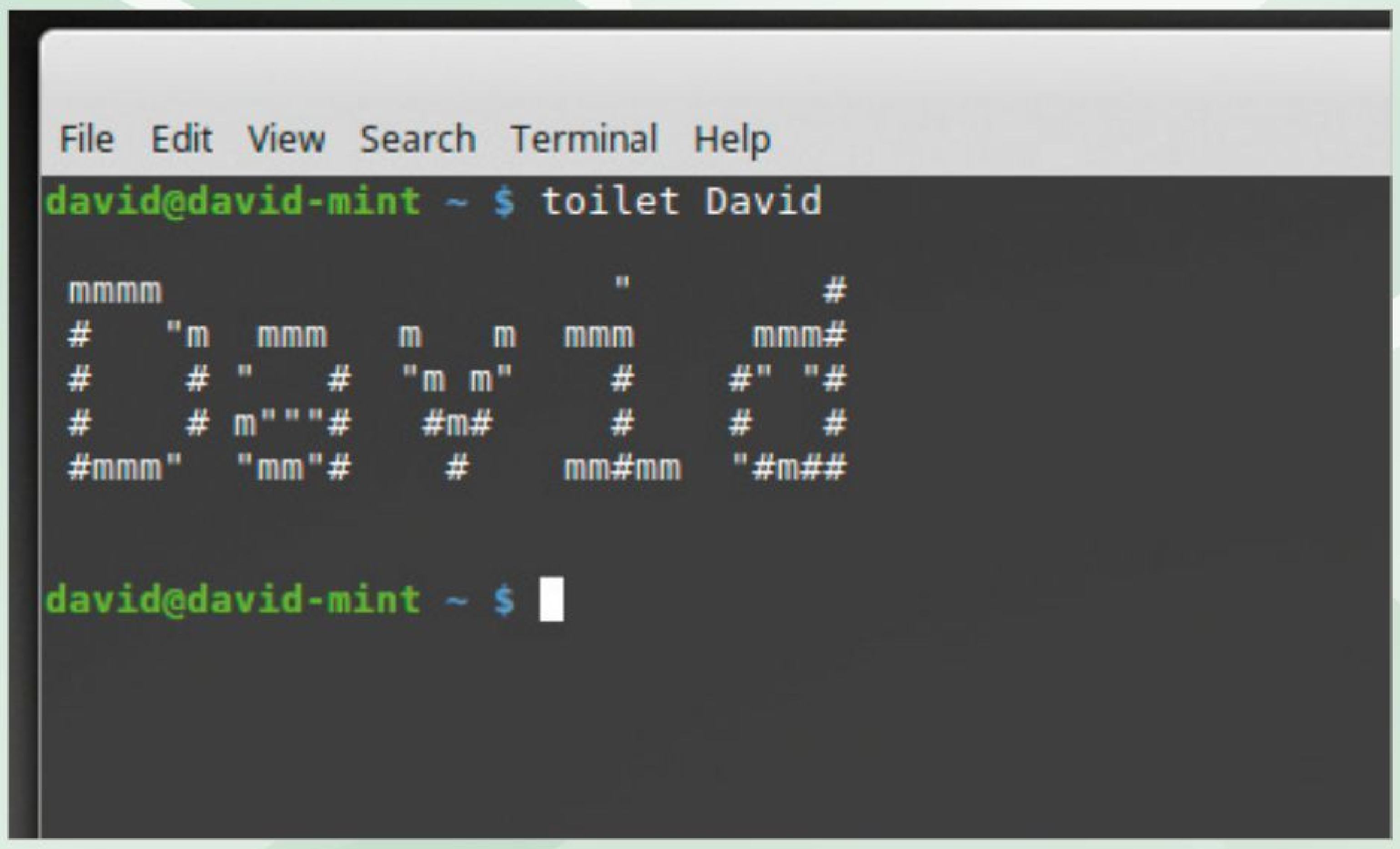
```
david@david-mint ~ $ sudo apt-get install xcowsay
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed
  xcowsay
0 to upgrade, 1 to newly install, 0 to remove and 0 not to upgrade.
Need to get 69.2 kB of archives.
After this operation, 171 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu xenial/universe amd64 xcowsay amd64 1.3-1 [69.2 kB]
Fetched 69.2 kB in 0s (1,030 kB/s)
Selecting previously unselected package xcowsay.
(Reading database ... 203789 files and directories currently installed.)
Preparing to unpack .../xcowsay_1.3-1_amd64.deb ...
Unpacking xcowsay (1.3-1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up xcowsay (1.3-1) ...
david@david-mint ~ $ xcowsay Linux Mint is ace!
david@david-mint ~ $ xcowsay Linux Mint is ace!
```

STEP 8 If you really want to expand the whole cow thing, for whatever reason, then pipe the fortune command through it, with: `fortune | cowsay`; and for the graphical cow equivalent: `fortune | xcowsay`. Plus, there's always cowthink. Try: `cowthink ...This book is awesome.`


Computer
Home
david@david-mint ~
File Edit View Search Terminal Help
If you tell the truth you don't have to remember anything.
-- Mark Twain

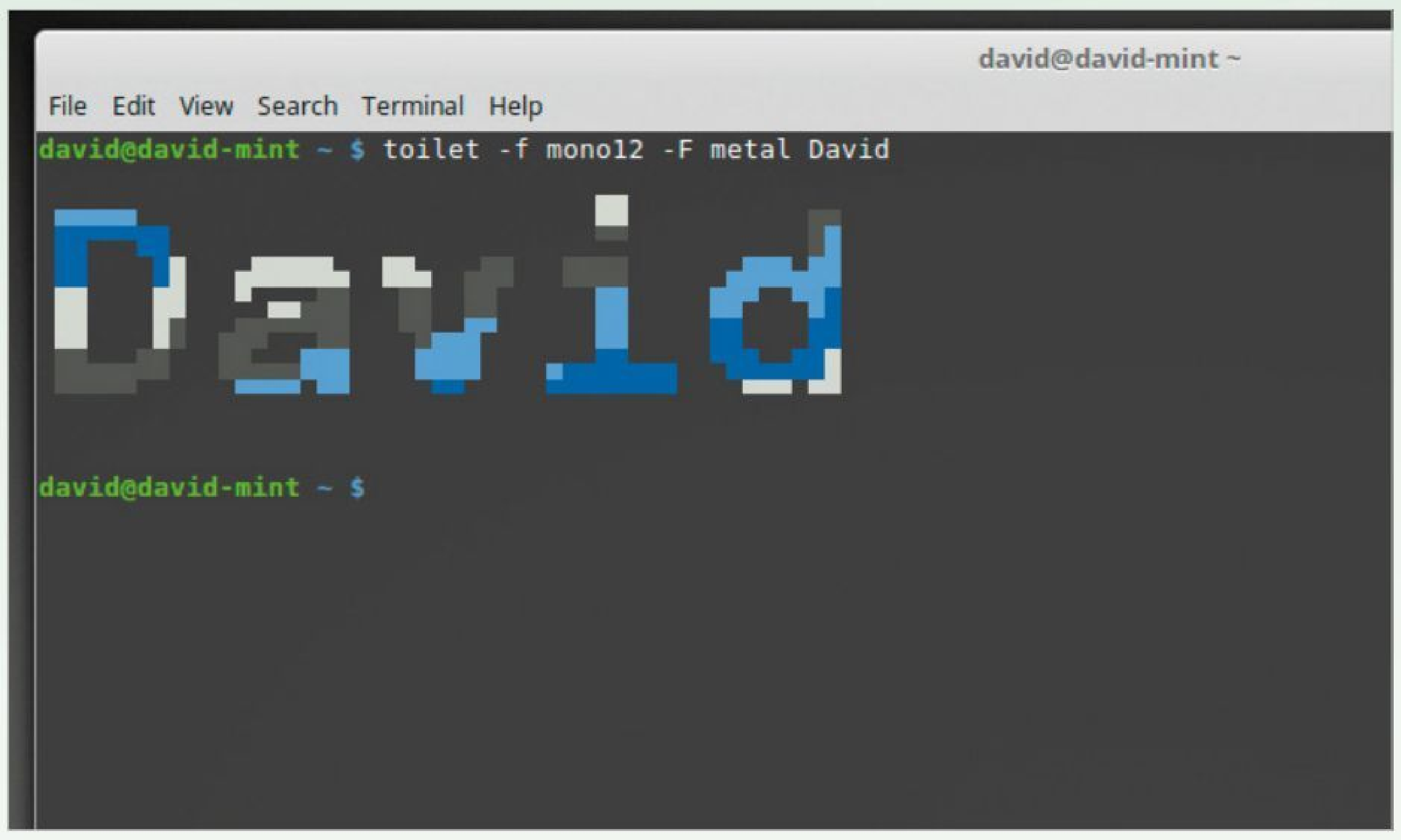
```
david@david-mint ~ $ fortune | cowsay
 ________________________________________
/ You will be awarded a medal for        \
\ disregarding safety in saving someone. /
 ----------------------------------------
        \   ^__^
         \  (oo)\_______
            (__)\       )\/\
                ||----w |
                ||     ||
david@david-mint ~ $ cowthink ...This book is aewsome
 _________________________
( ...This book is aewsome )
 -------------------------
        o   ^__^
         o  (oo)\_______
            (__)\       )\/\
                ||----w |
                ||     ||
david@david-mint ~ $ fortune | xcowsay
```

STEP 9 The command `toilet` doesn't inspire much confidence, admittedly. However, it's not as bad as it first sounds. Start by installing it with: `sudo apt-get install toilet`. Then when installed, type something along the lines of: `toilet David`; or perhaps list the contents of the current folder through it, with: `ls | toilet`.


File Edit View Search Terminal Help

```
david@david-mint ~ $ toilet David

 mmmm                  "          #
 #   "m  mmm    m    m  mmm       mmm#
 #    #  "   #  "m  m"    #      #"  "#
 #    #  m"""#   #m#      #      #    #
 #mmm"   "mm"#    #     mm#mm    "#m##


david@david-mint ~ $
```

STEP 10 Expanding the toilet command, you can actually generate some decent looking graphics through it. For example, try this: `toilet -f mono12 -F metal David`. You can enter `toilet --help`, for a list of the command line arguments to expand further.


david@david-mint ~
File Edit View Search Terminal Help

```
david@david-mint ~ $ toilet -f mono12 -F metal David

david@david-mint ~ $
```

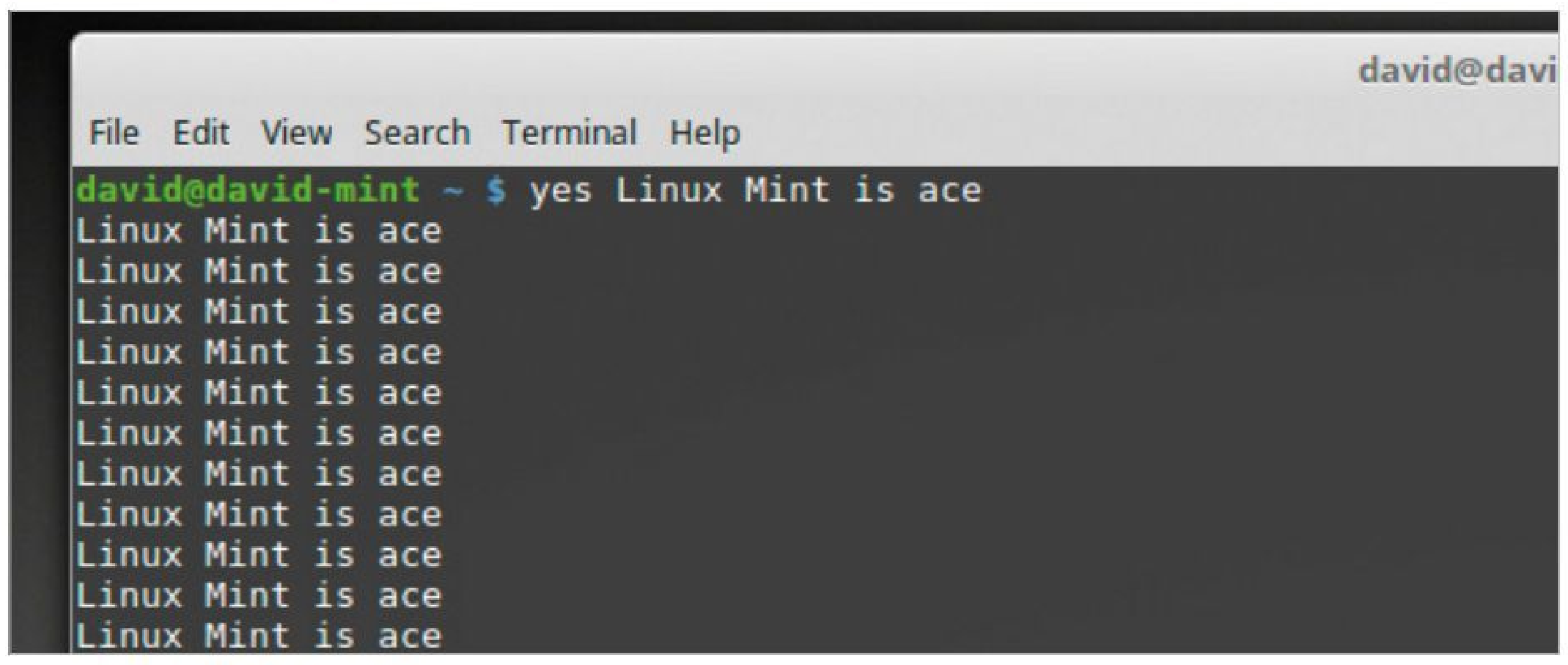
More Fun Things to do in the Terminal

If the previous list of fun, and quite bizarre, things to do in the Terminal has you wanting more, you're in luck. We've put together another batch of some useful, and some not so useful, commands for you to try out.

MORE FUN, YAY

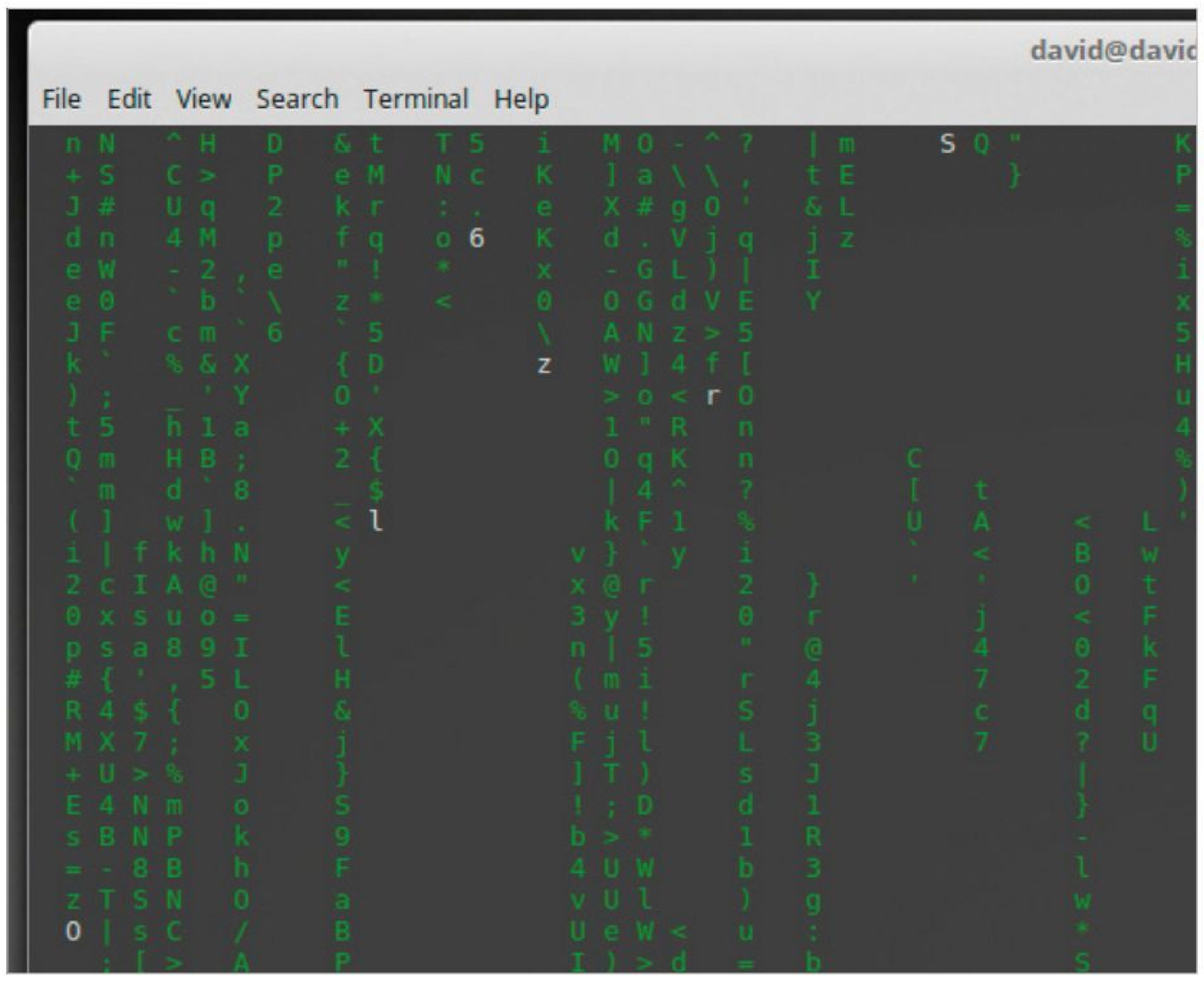
Since the Terminal session is already open, and your keyboard digits are nicely warmed up, here are another two pages of Terminal nonsense.

STEP 1 Remember the old ZX Spectrum days of computing, when you could type in 10 print "Hello", 20 goto 10 and Hello would list down the screen? Well, in Linux Mint you can do the same. Simply enter: `yes` followed by some text, i.e. `yes Linux Mint is ace`. It keeps going until you press Ctrl+C.

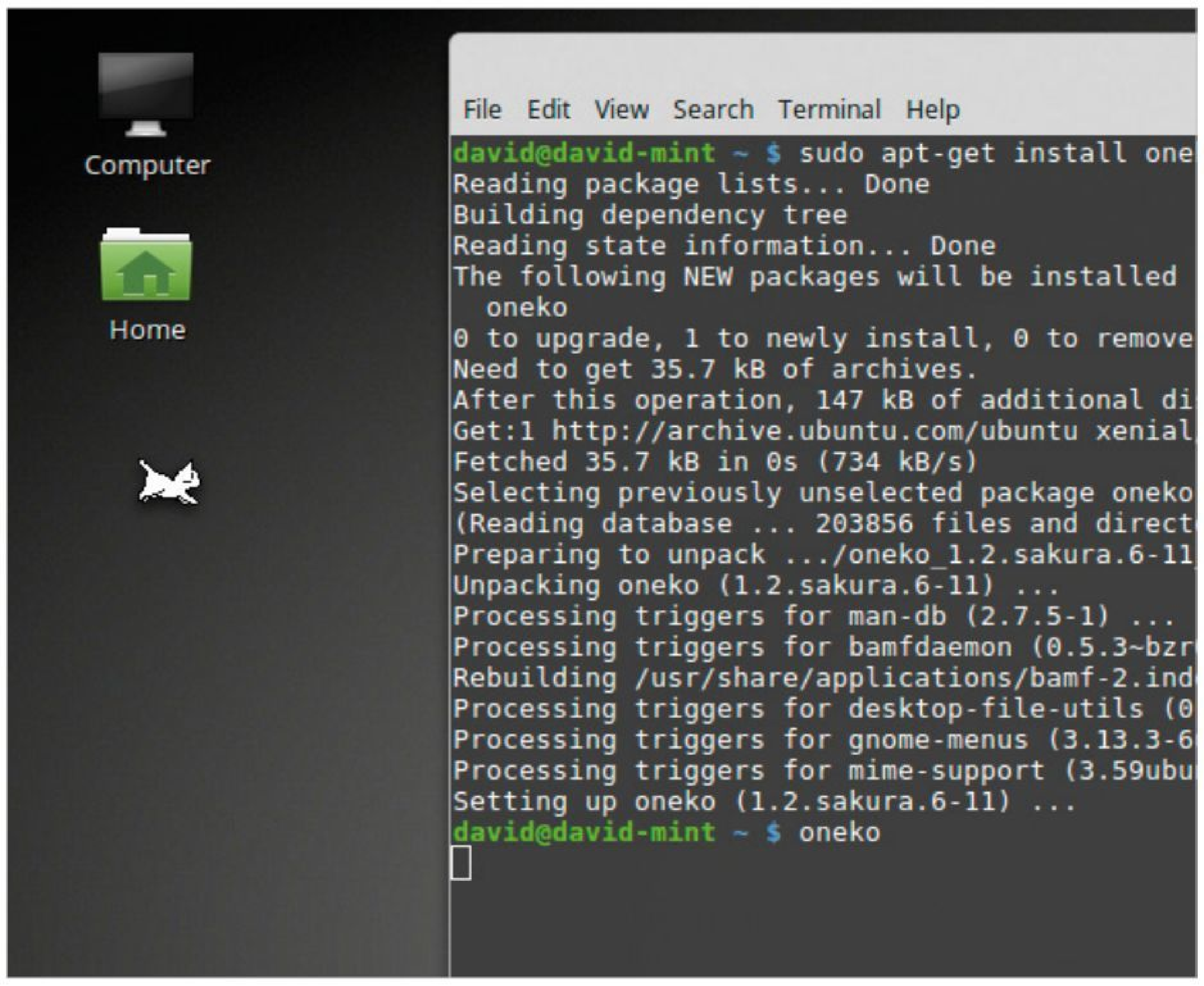


```
david@david-mint ~ $ yes Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
Linux Mint is ace
```

STEP 2 The Matrix was one of the most graphically copied films ever released and there's even a version of the Matrix code available for Linux Mint. Install it with: `sudo apt-get install cmatrix`. When it's done enter: `cmatrix` and follow the white rabbit, Neo. Unlike the real Matrix though, you can press Ctrl+C to exit.

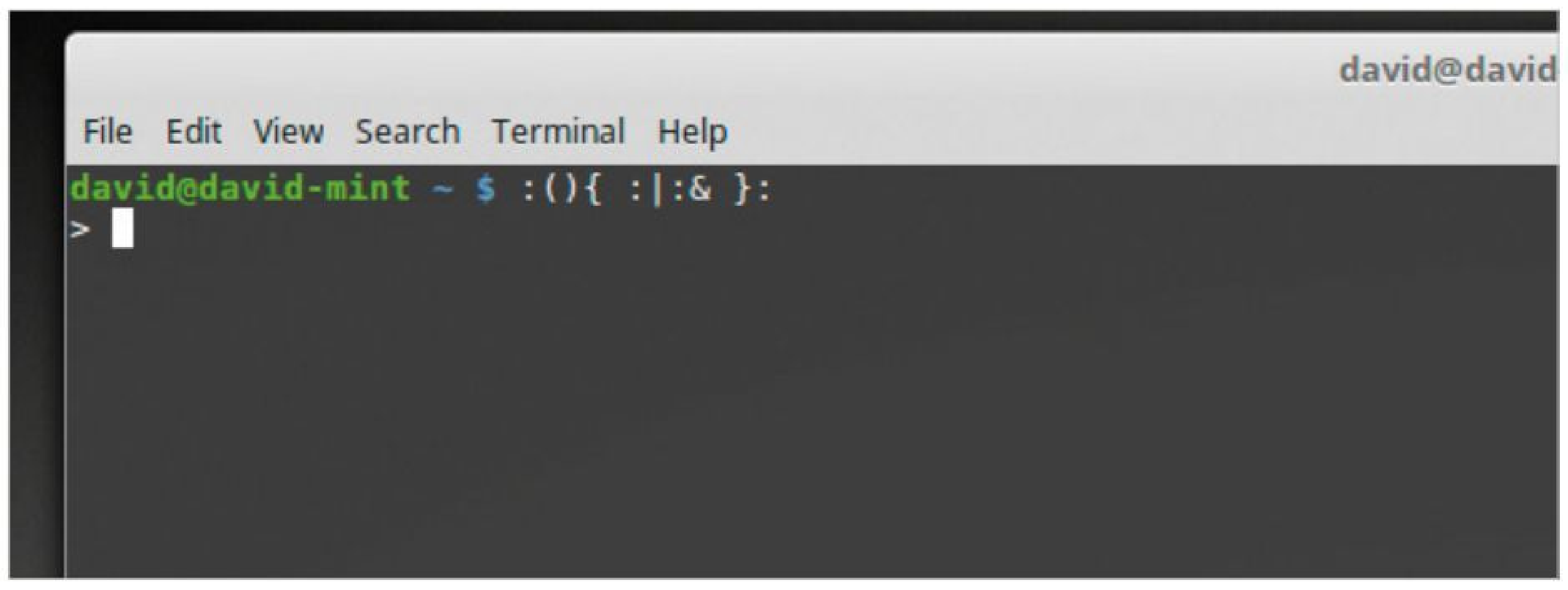


STEP 3 Having a little white cat chase your mouse pointer around the desktop may sound like a terrible waste of time. Oddly though, it isn't. Enter: `sudo apt-get install oneko`, then type `oneko` to have the cat appear. Move your 'mouse' cursor around the screen and the cat will chase it. Use Ctrl+C to exit the action.



```
david@david-mint ~ $ sudo apt-get install one
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed
  oneko
0 to upgrade, 1 to newly install, 0 to remove
Need to get 35.7 kB of archives.
After this operation, 147 kB of additional di
Get:1 http://archive.ubuntu.com/ubuntu xenial
Fetched 35.7 kB in 0s (734 kB/s)
Selecting previously unselected package oneko
(Reading database ... 203856 files and direct
Preparing to unpack .../oneko_1.2.sakura.6-11
Unpacking oneko (1.2.sakura.6-11) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for bamfdaemon (0.5.3~bzr
Rebuilding /usr/share/applications/bamf-2.ind
Processing triggers for desktop-file-utils (0
Processing triggers for gnome-menus (3.13.3-6
Processing triggers for mime-support (3.59ubu
Setting up oneko (1.2.sakura.6-11) ...
david@david-mint ~ $ oneko
```

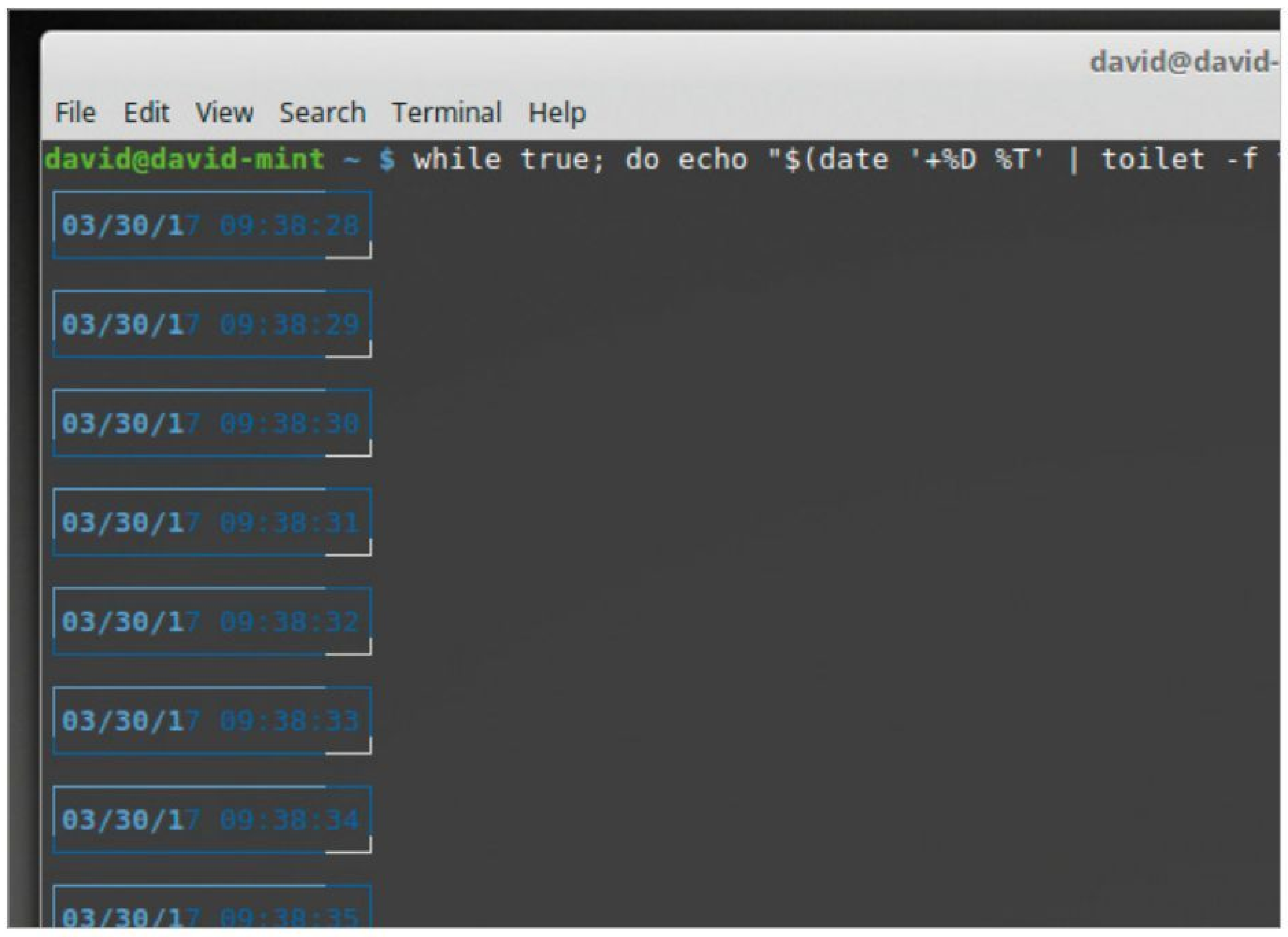
STEP 4 This entry is a little more serious than the previous. It's called the Fork Bomb and what it does, is continually replicate itself until it has used up all the available system resources, thus causing your computer to crash. You don't have to try it but it's interesting nonetheless. Simply enter `:(){ :|:& }:` and be prepared to reboot.



```
david@david-mint ~ $ :(){ :|:& }:
>
```

STEP 5

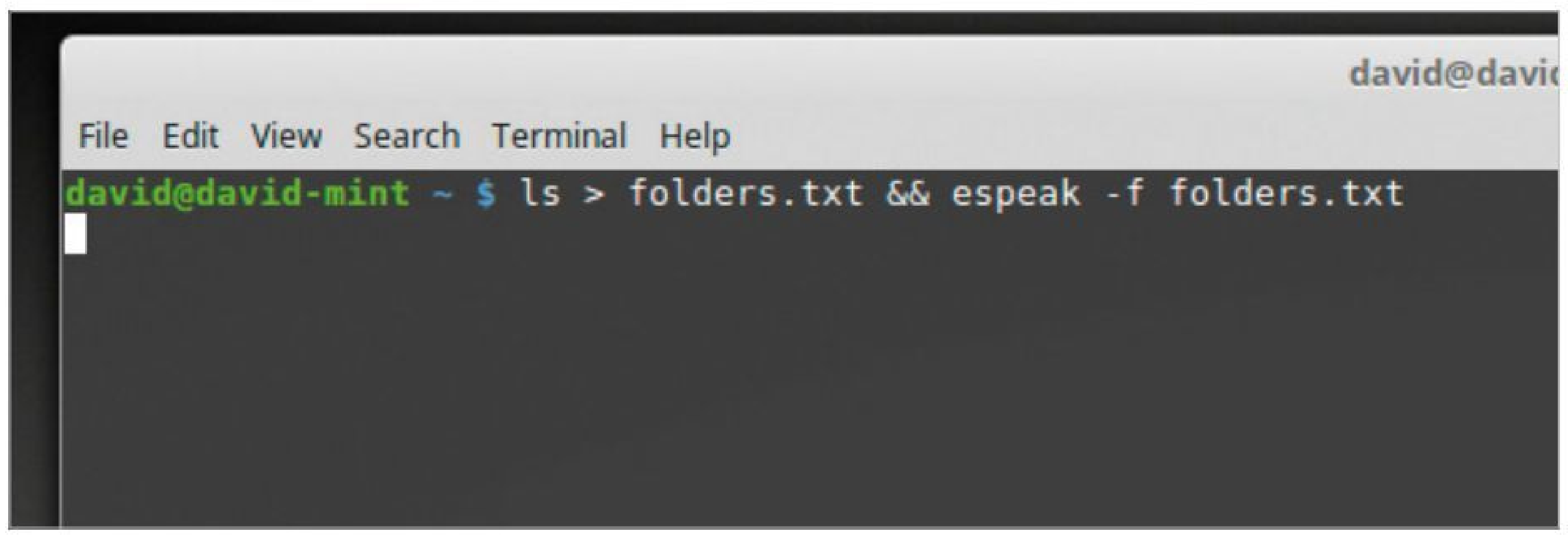
Stringing several commands and piping them through other commands is what makes scripting such a powerful element to an OS. For example, using the while command, together with toilet, can yield some impressive results. Enter: `while true; do echo "$(date '+%D %T' | toilet -f term -F border --metal)"; sleep 1; done`.



```
david@david-mint ~ $ while true; do echo "$(date '+%D %T' | toilet -f
03/30/17 09:38:28
03/30/17 09:38:29
03/30/17 09:38:30
03/30/17 09:38:31
03/30/17 09:38:32
03/30/17 09:38:33
03/30/17 09:38:34
03/30/17 09:38:35
```

STEP 6

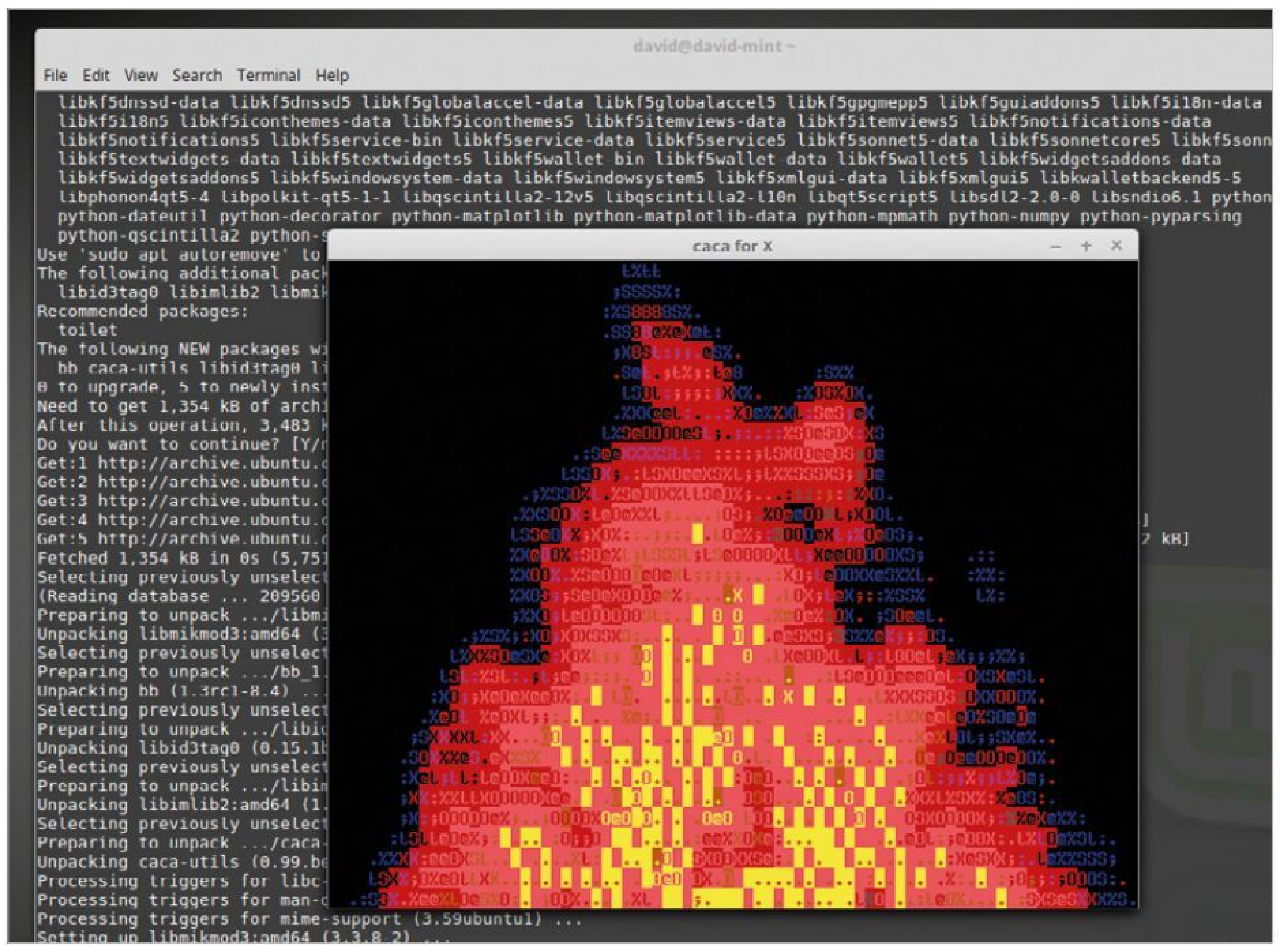
Talking computers were the craze of the '80s, enter: `espeak "Hello, this is Linux Mint"` to have the computer repeat the text inside the quotes to you. Make sure your volume is turned up, and try the following: `ls > folders.txt && espeak -f folders.txt`. This will have Mint read back the contents of the `ls` command.



```
david@david-mint ~ $ ls > folders.txt && espeak -f folders.txt
```

STEP 7

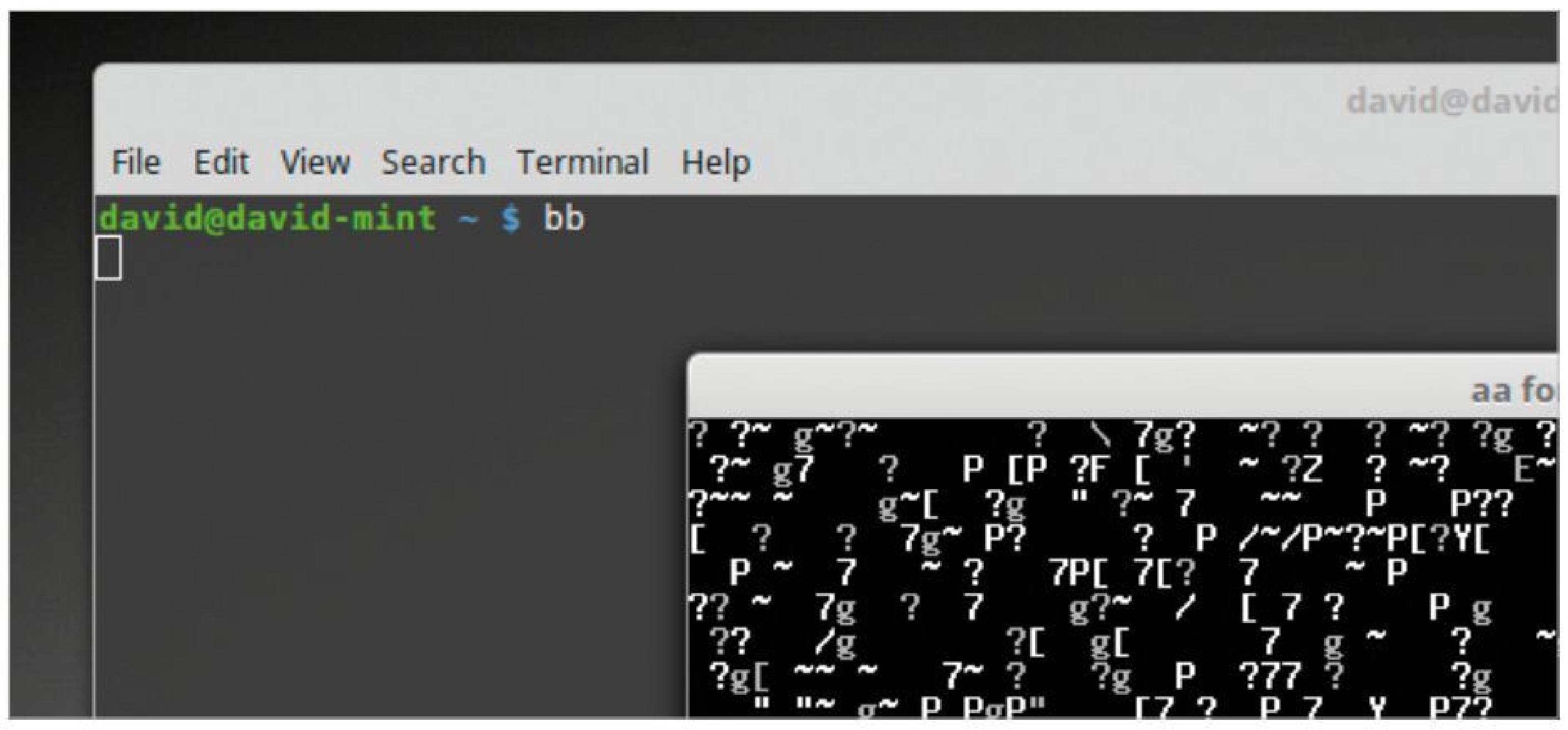
A roaring ASCII fire isn't the most useful command to have at your disposal, but it's fun. Install it with: `sudo apt-get install libaa-bin`, then when installed use: `aafire`. It's not exactly warming but you get the idea. To expand the above, enter: `sudo apt-get install bb caca-utils`, then, `cacafire`.



```
  libkf5dnssd-data libkf5dnssd5 libkf5globalaccel-data libkf5globalaccel5 libkf5gpgmepp5 libkf5guiaddons5 libkf5i18n-data
  libkf5i18n5 libkf5iconthemes-data libkf5iconthemes5 libkf5itemviews-data libkf5itemviews5 libkf5notifications-data
  libkf5notifications5 libkf5service-bin libkf5service-data libkf5service5 libkf5sonnet5-data libkf5sonnetcore5 libkf5sonn
  libkf5textwidgets-data libkf5textwidgets5 libkf5wallet-bin libkf5wallet-data libkf5wallet5 libkf5widgetsaddons-data
  libkf5widgetsaddons5 libkf5windowsystem-data libkf5windowsystem5 libkf5xmlgui-data libkf5xmlgui5 libkwalletbackend5-5
  libphonon4qt5-4 libpolkit-qt5-1-1 libqscintilla2-12v5 libqscintilla2-l10n libqt5script5 libsdl2-2.0-0 libsndio6.1 python
  python-dateutil python-decorator python-matplotlib python-matplotlib-data python-mpmath python-numpy python-pyparsing
  python-qscintilla2 python-s
Use 'sudo apt autoremove' to
The following additional pack
  libid3tag0 libimlib2 libmik
Recommended packages:
  toilet
The following NEW packages wi
  bb caca-utils libid3tag0 li
0 to upgrade, 5 to newly inst
Need to get 1,354 kB of archi
After this operation, 3,483 k
Do you want to continue? [Y/n
Get:1 http://archive.ubuntu.c
Get:2 http://archive.ubuntu.c
Get:3 http://archive.ubuntu.c
Get:4 http://archive.ubuntu.c
Get:5 http://archive.ubuntu.c                                                                    2 kB]
Fetched 1,354 kB in 0s (5,751
Selecting previously unselect
(Reading database ... 209560
Preparing to unpack .../libmi
Unpacking libmikmod3:amd64 (3
Selecting previously unselect
Preparing to unpack .../bb_1.
Unpacking bb (1.3rc1-8.4) ...
Selecting previously unselect
Preparing to unpack .../libic
Unpacking libid3tag0 (0.15.1b
Selecting previously unselect
Preparing to unpack .../libim
Unpacking libimlib2:amd64 (1.
Selecting previously unselect
Preparing to unpack .../caca-
Unpacking caca-utils (0.99.be
Processing triggers for libc-
Processing triggers for man-d
Processing triggers for mime-support (3.59ubuntu1) ...
Setting up libmikmod3:amd64 (3.3.8-2) ...
```

STEP 8

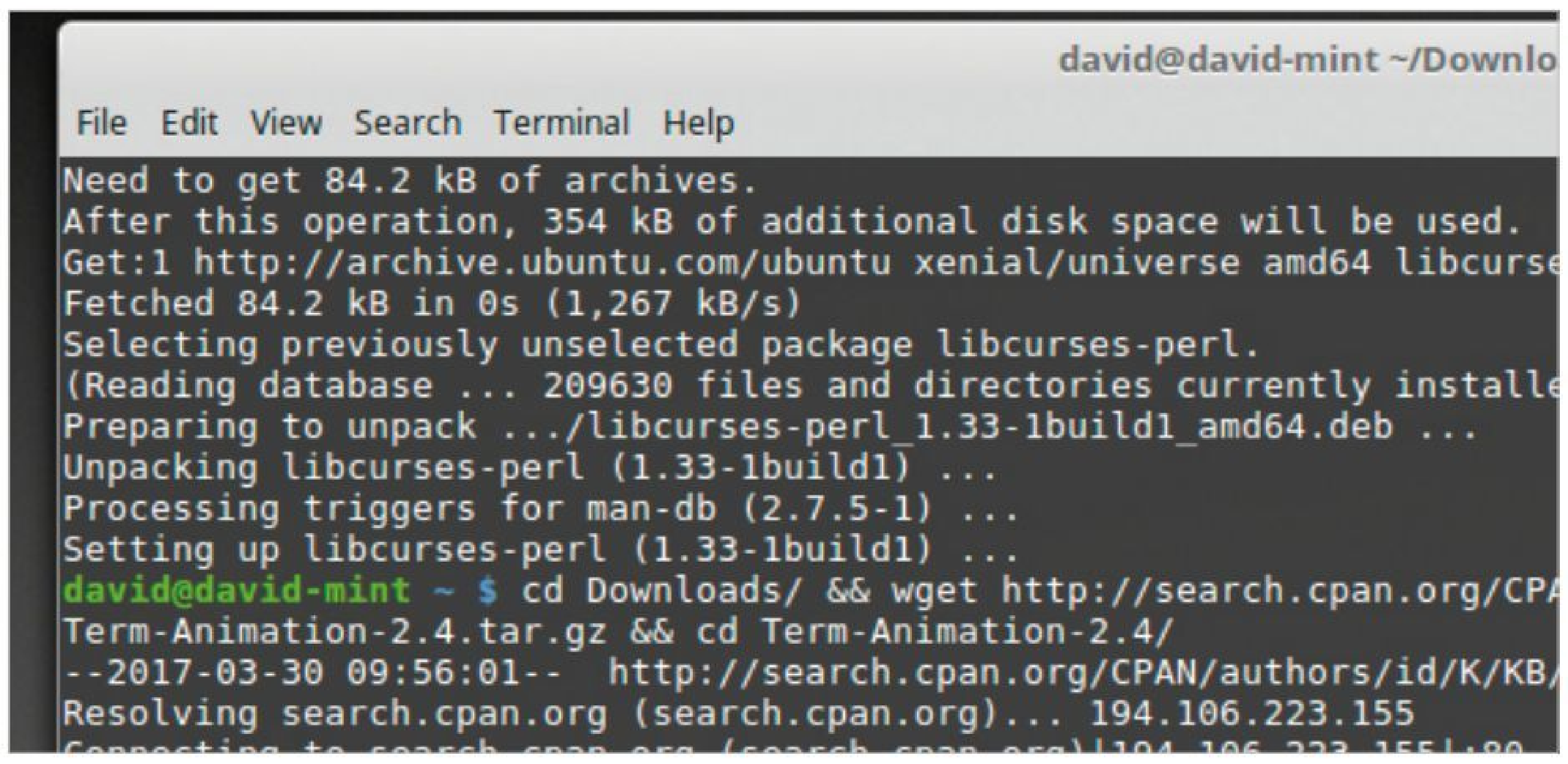
Used as a music demo from the old Amiga and DOS days, the `bb` command reminds us of getting hold of three and a half inch floppies crammed with all manner of demoscene goodies. Once you've installed bb from the previous step, just enter `bb`, follow the on-screen instructions and turn up your volume.



```
david@david-mint ~ $ bb
```

STEP 9

This entry is in two parts. First you need to get hold of the necessary packages: `sudo apt-get install libcurses-perl`. When that's done enter: `cd Downloads/ && wget http://search.cpan.org/CPAN/authors/id/K/KB/KBAUCOM/Term-Animation-2.4.tar.gz && tar -xf Term-Animation-2.4.tar.gz && cd Term-Animation-2.4/`. Then: `perl Makefile.PL && make && make test && sudo make install`.

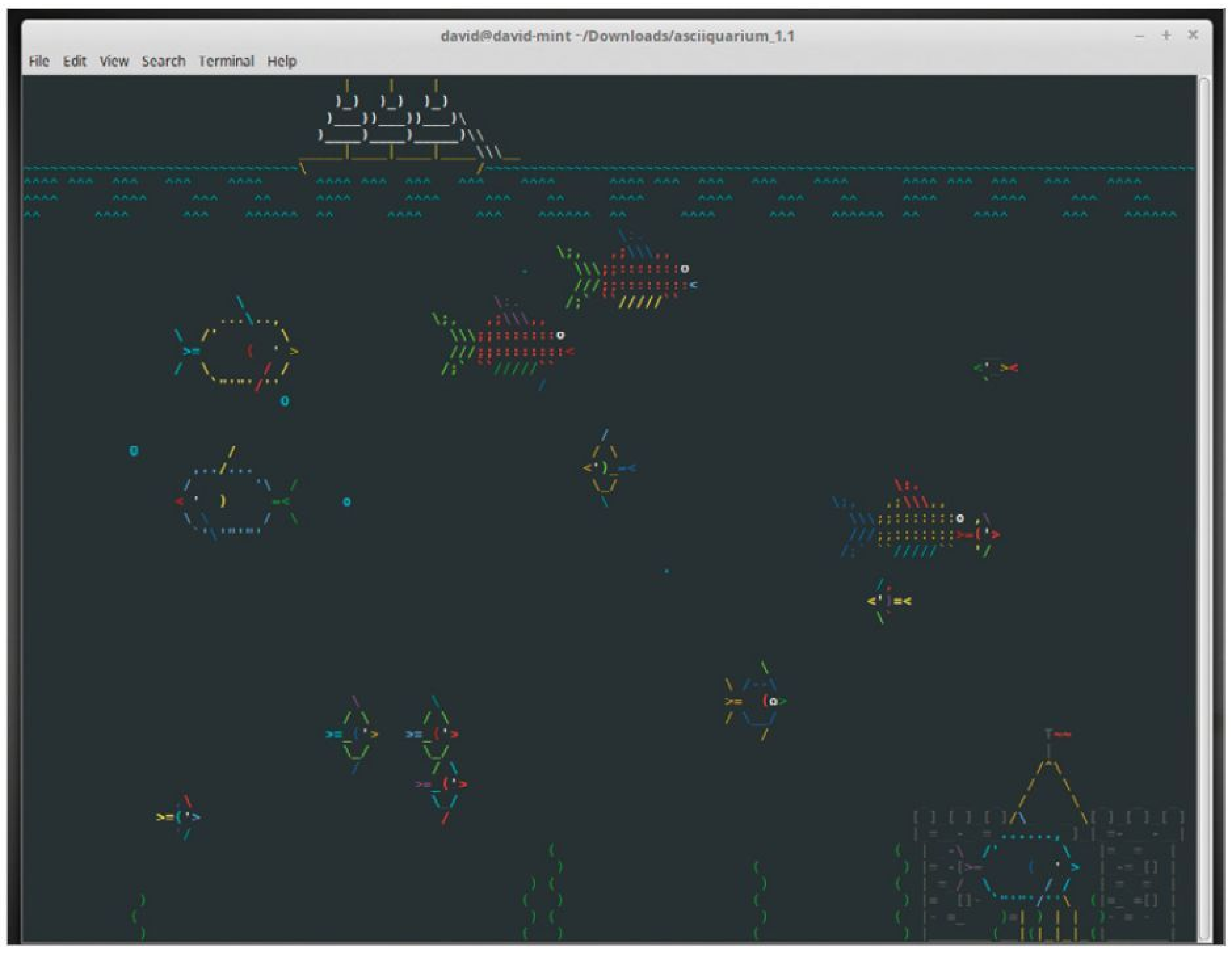


david@david-mint ~/Downlo
File Edit View Search Terminal Help

```
Need to get 84.2 kB of archives.
After this operation, 354 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu xenial/universe amd64 libcurse
Fetched 84.2 kB in 0s (1,267 kB/s)
Selecting previously unselected package libcurses-perl.
(Reading database ... 209630 files and directories currently installe
Preparing to unpack .../libcurses-perl_1.33-1build1_amd64.deb ...
Unpacking libcurses-perl (1.33-1build1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up libcurses-perl (1.33-1build1) ...
david@david-mint ~ $ cd Downloads/ && wget http://search.cpan.org/CPA
Term-Animation-2.4.tar.gz && cd Term-Animation-2.4/
--2017-03-30 09:56:01--  http://search.cpan.org/CPAN/authors/id/K/KB/
Resolving search.cpan.org (search.cpan.org)... 194.106.223.155
```

STEP 10

With that little lot done, onto the next. Enter: `cd .. && wget http://www.robobunny.com/projects/asciiquarium/asciiquarium.tar.gz && tar -xf asciiquarium.tar.gz && cd asciiquarium_1.1/ && chmod +x asciiquarium`. Providing all went well, enter `./asciiquarium` and enjoy your very own ASCII-based aquarium.



david@david-mint ~/Downloads/asciiquarium_1.1
File Edit View Search Terminal Help

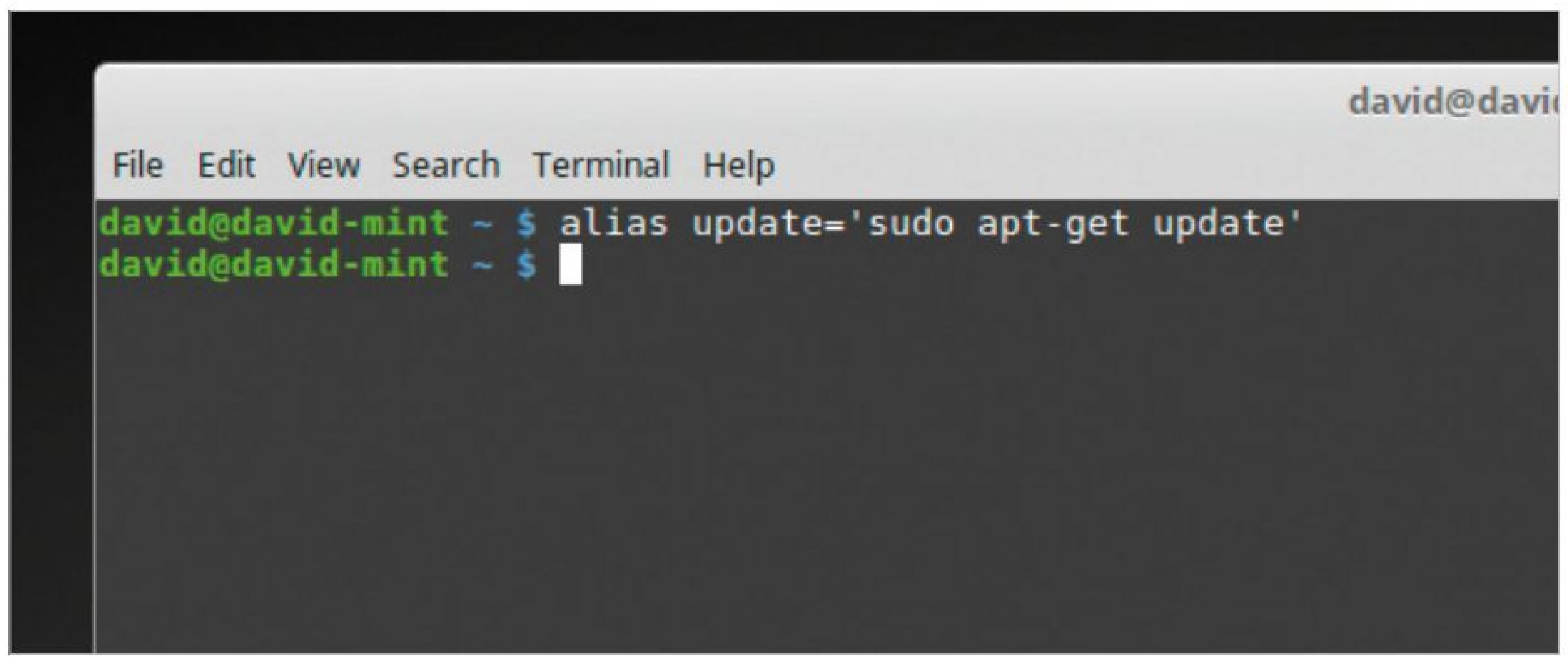
Creating Aliases in the Terminal

As you've noticed, some Terminal commands can be quite long and prone to a miss-type, or a complete pain to try and remember. Thankfully Mint has a way in which you can make entering commands a little easier.

ALIAS LINUX AND MINT

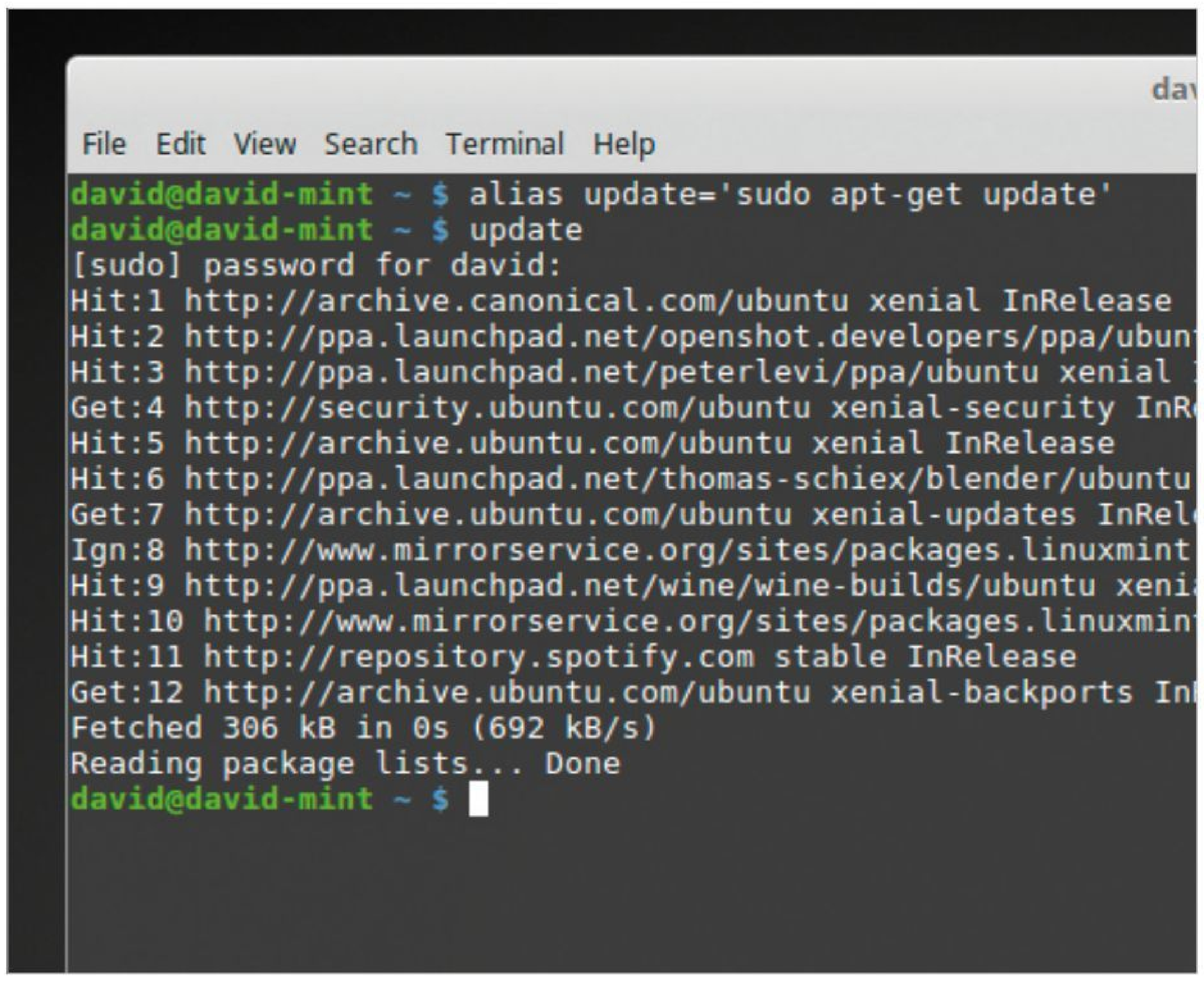
To help you with lengthy commands you can use the alias function in Mint. This will allow you to create easy to recall commands that are aliases of the actual commands.

STEP 1 Start by opening the Terminal. Let's take one of the longer commands you've already looked at, the update and upgrade commands. Instead of always typing in `sudo apt-get update`, you can create an alias by entering: `alias update='sudo apt-get update'`.



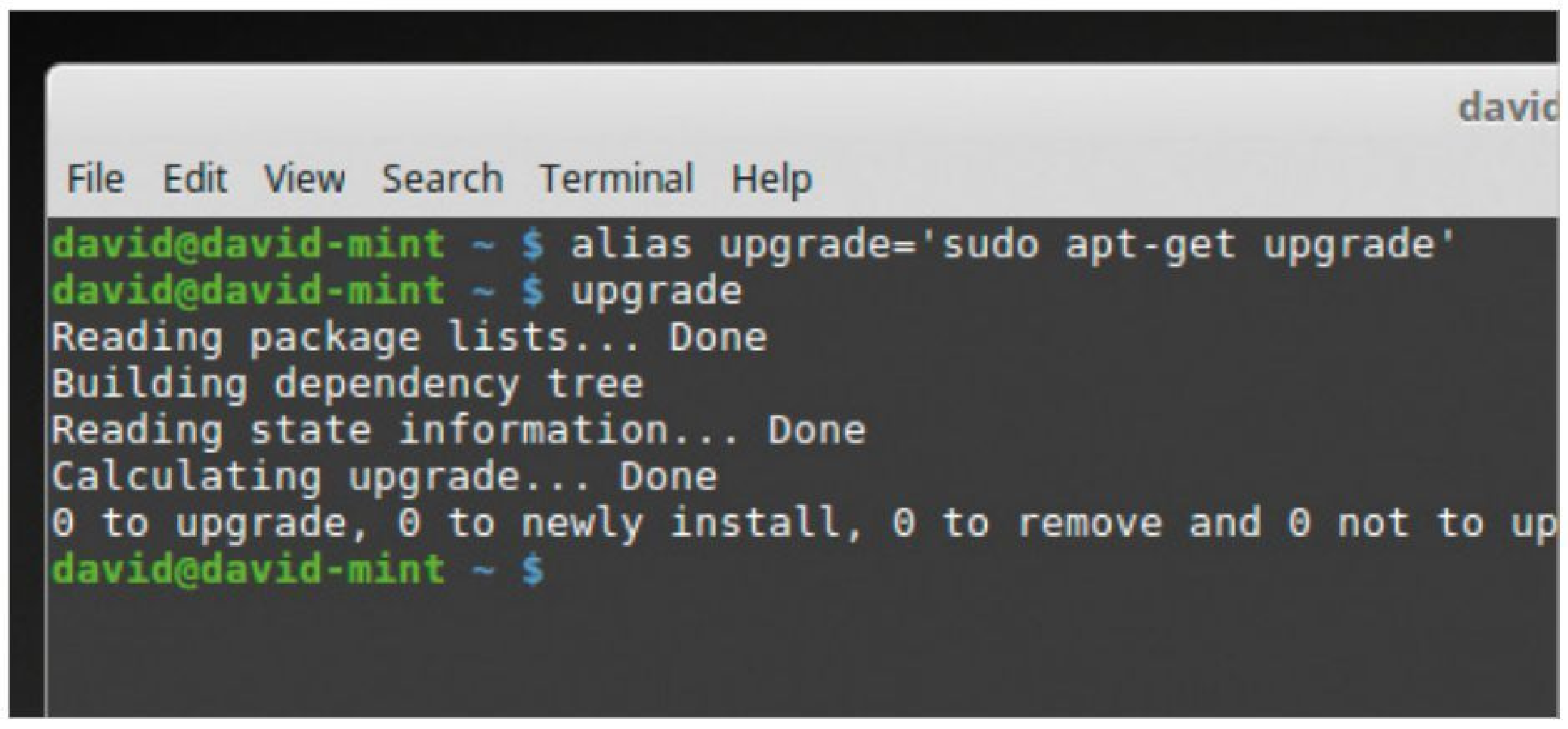
```
david@david-mint ~ $ alias update='sudo apt-get update'
david@david-mint ~ $ █
```

STEP 2 Pressing Enter after the alias command doesn't offer any conformation but as long as there's no errors reported then the command has worked. Now as opposed to enter the whole sudo apt-get update command, you can simply enter `update` into the Terminal. You'll still be required to enter the password for the sudo command but it's easier to update now.



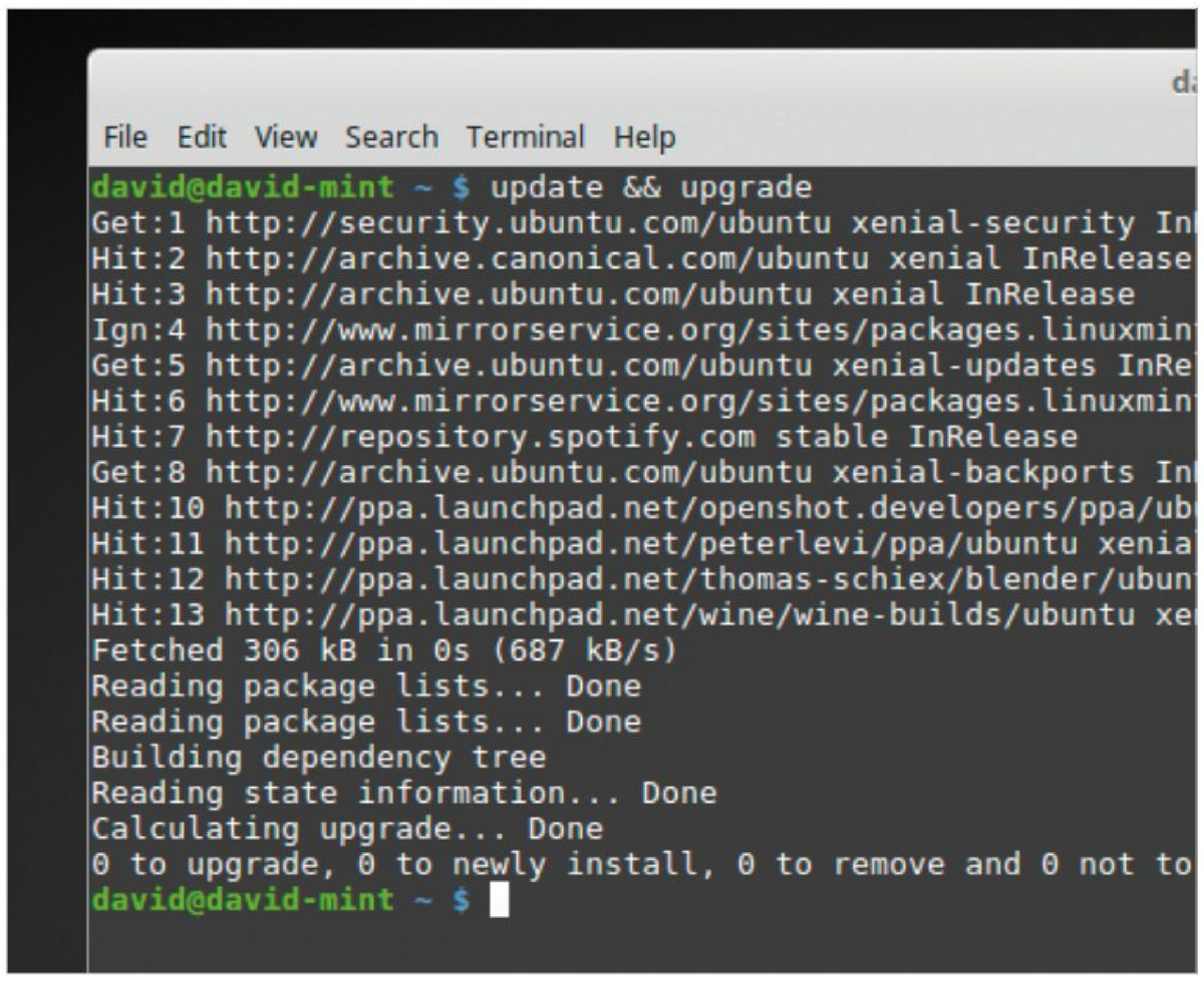
```
david@david-mint ~ $ alias update='sudo apt-get update'
david@david-mint ~ $ update
[sudo] password for david:
Hit:1 http://archive.canonical.com/ubuntu xenial InRelease
Hit:2 http://ppa.launchpad.net/openshot.developers/ppa/ubun
Hit:3 http://ppa.launchpad.net/peterlevi/ppa/ubuntu xenial
Get:4 http://security.ubuntu.com/ubuntu xenial-security InR
Hit:5 http://archive.ubuntu.com/ubuntu xenial InRelease
Hit:6 http://ppa.launchpad.net/thomas-schiex/blender/ubuntu
Get:7 http://archive.ubuntu.com/ubuntu xenial-updates InRel
Ign:8 http://www.mirrorservice.org/sites/packages.linuxmint
Hit:9 http://ppa.launchpad.net/wine/wine-builds/ubuntu xeni
Hit:10 http://www.mirrorservice.org/sites/packages.linuxmin
Hit:11 http://repository.spotify.com stable InRelease
Get:12 http://archive.ubuntu.com/ubuntu xenial-backports In
Fetched 306 kB in 0s (692 kB/s)
Reading package lists... Done
david@david-mint ~ $ █
```

STEP 3 Do the same for sudo apt-get upgrade, with the command: `alias upgrade='sudo apt-get upgrade'`. All you need to do is enter `upgrade` into the Terminal, and the alias command will run through its normal command process.



```
david@david-mint ~ $ alias upgrade='sudo apt-get upgrade'
david@david-mint ~ $ upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
0 to upgrade, 0 to newly install, 0 to remove and 0 not to up
david@david-mint ~ $
```

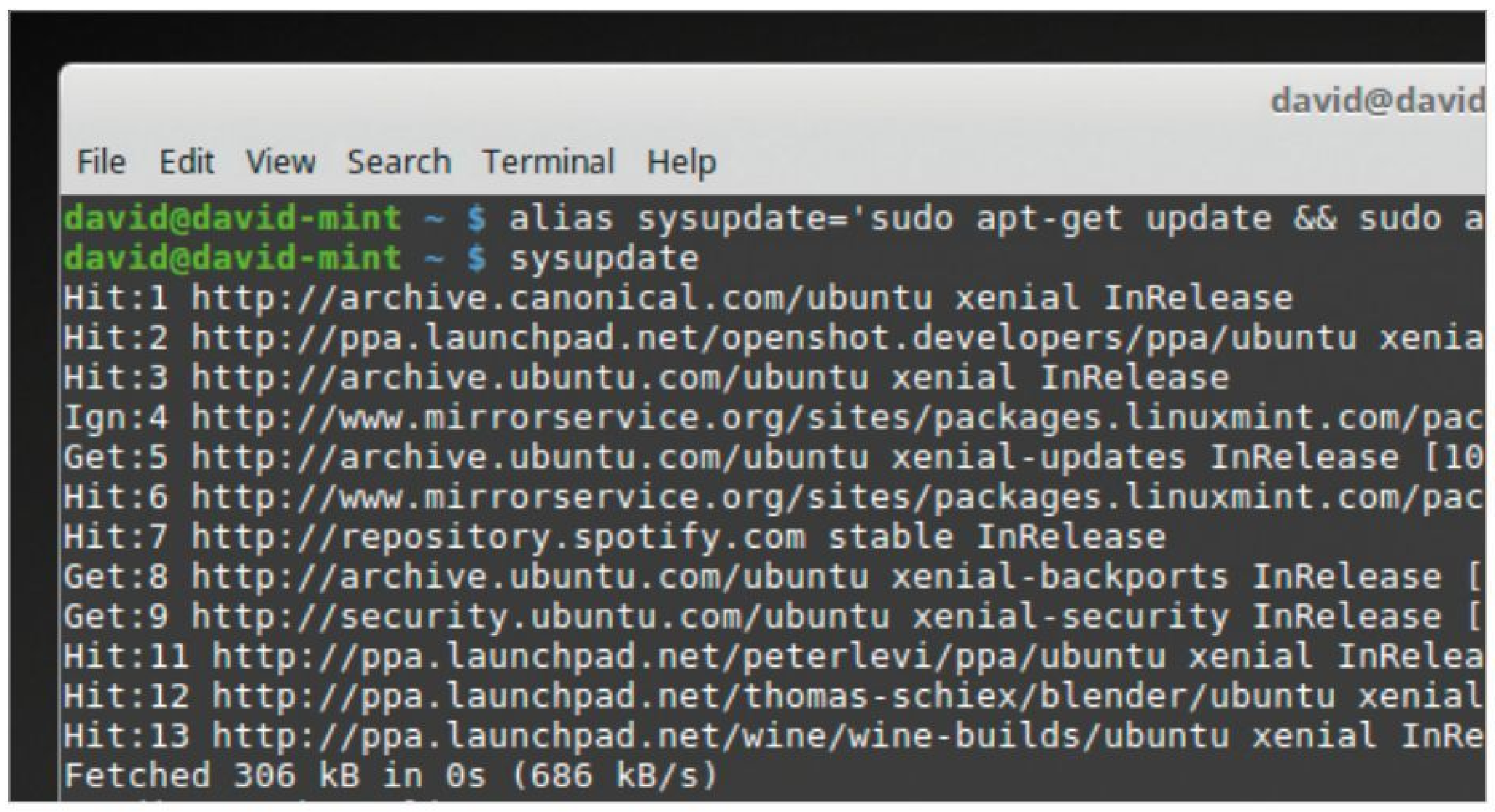
STEP 4 Recall how you chained two commands together, with `sudo apt-get update && sudo apt-get upgrade`? With the new two new alias commands set up, update and upgrade, you can also chain aliases in the exactly the same way; since they are running the same command in the background. For example, enter: `update && upgrade`.



```
david@david-mint ~ $ update && upgrade
Get:1 http://security.ubuntu.com/ubuntu xenial-security In
Hit:2 http://archive.canonical.com/ubuntu xenial InRelease
Hit:3 http://archive.ubuntu.com/ubuntu xenial InRelease
Ign:4 http://www.mirrorservice.org/sites/packages.linuxmin
Get:5 http://archive.ubuntu.com/ubuntu xenial-updates InRe
Hit:6 http://www.mirrorservice.org/sites/packages.linuxmin
Hit:7 http://repository.spotify.com stable InRelease
Get:8 http://archive.ubuntu.com/ubuntu xenial-backports In
Hit:10 http://ppa.launchpad.net/openshot.developers/ppa/ub
Hit:11 http://ppa.launchpad.net/peterlevi/ppa/ubuntu xenia
Hit:12 http://ppa.launchpad.net/thomas-schiex/blender/ubun
Hit:13 http://ppa.launchpad.net/wine/wine-builds/ubuntu xe
Fetched 306 kB in 0s (687 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
0 to upgrade, 0 to newly install, 0 to remove and 0 not to
david@david-mint ~ $ █
```

STEP 5

However, creating two separate alias commands isn’t always beneficial. Take the entire update and upgrade commands and create a new alias that combines them both. Enter: `alias sysupdate=’sudo apt-get update && sudo apt-get upgrade’`; as you suspected, entering `sysupdate` into the Terminal will now run through both commands.

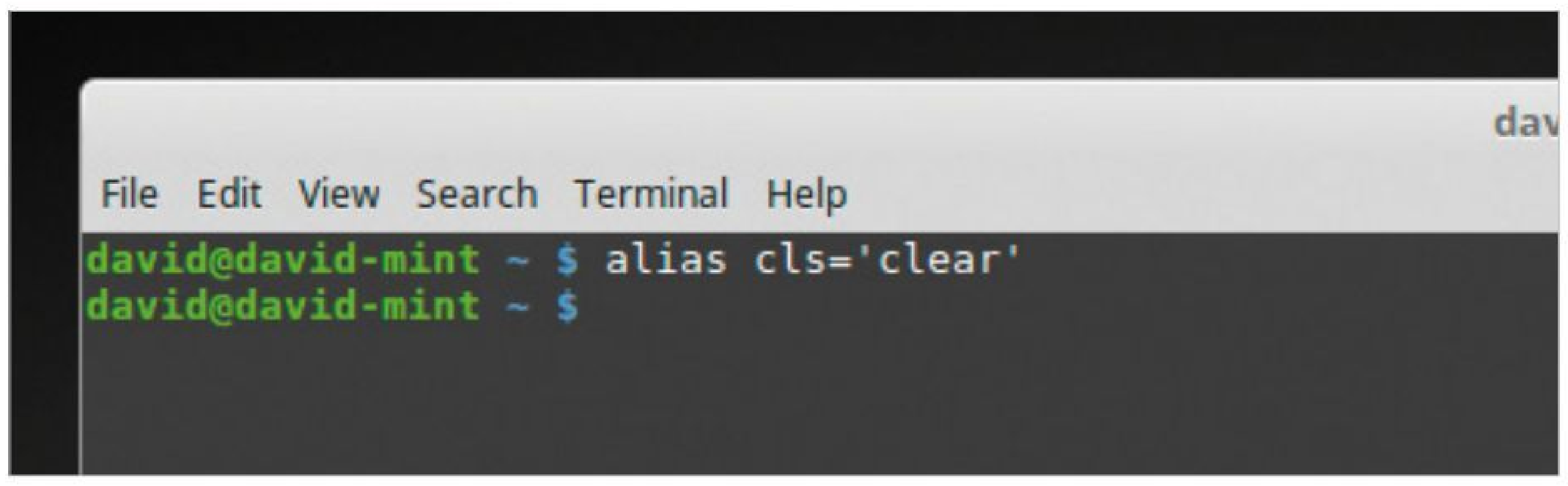


```
david@david-mint ~ $ alias sysupdate='sudo apt-get update && sudo a
david@david-mint ~ $ sysupdate
Hit:1 http://archive.canonical.com/ubuntu xenial InRelease
Hit:2 http://ppa.launchpad.net/openshot.developers/ppa/ubuntu xenia
Hit:3 http://archive.ubuntu.com/ubuntu xenial InRelease
Ign:4 http://www.mirrorservice.org/sites/packages.linuxmint.com/pac
Get:5 http://archive.ubuntu.com/ubuntu xenial-updates InRelease [10
Hit:6 http://www.mirrorservice.org/sites/packages.linuxmint.com/pac
Hit:7 http://repository.spotify.com stable InRelease
Get:8 http://archive.ubuntu.com/ubuntu xenial-backports InRelease [
Get:9 http://security.ubuntu.com/ubuntu xenial-security InRelease [
Hit:11 http://ppa.launchpad.net/peterlevi/ppa/ubuntu xenial InRelea
Hit:12 http://ppa.launchpad.net/thomas-schiex/blender/ubuntu xenial
Hit:13 http://ppa.launchpad.net/wine/wine-builds/ubuntu xenial InRe
Fetched 306 kB in 0s (686 kB/s)
```

STEP 6

You can create any named alias providing the alias isn’t already a name taken by the system. Some good examples of using an alias could be:

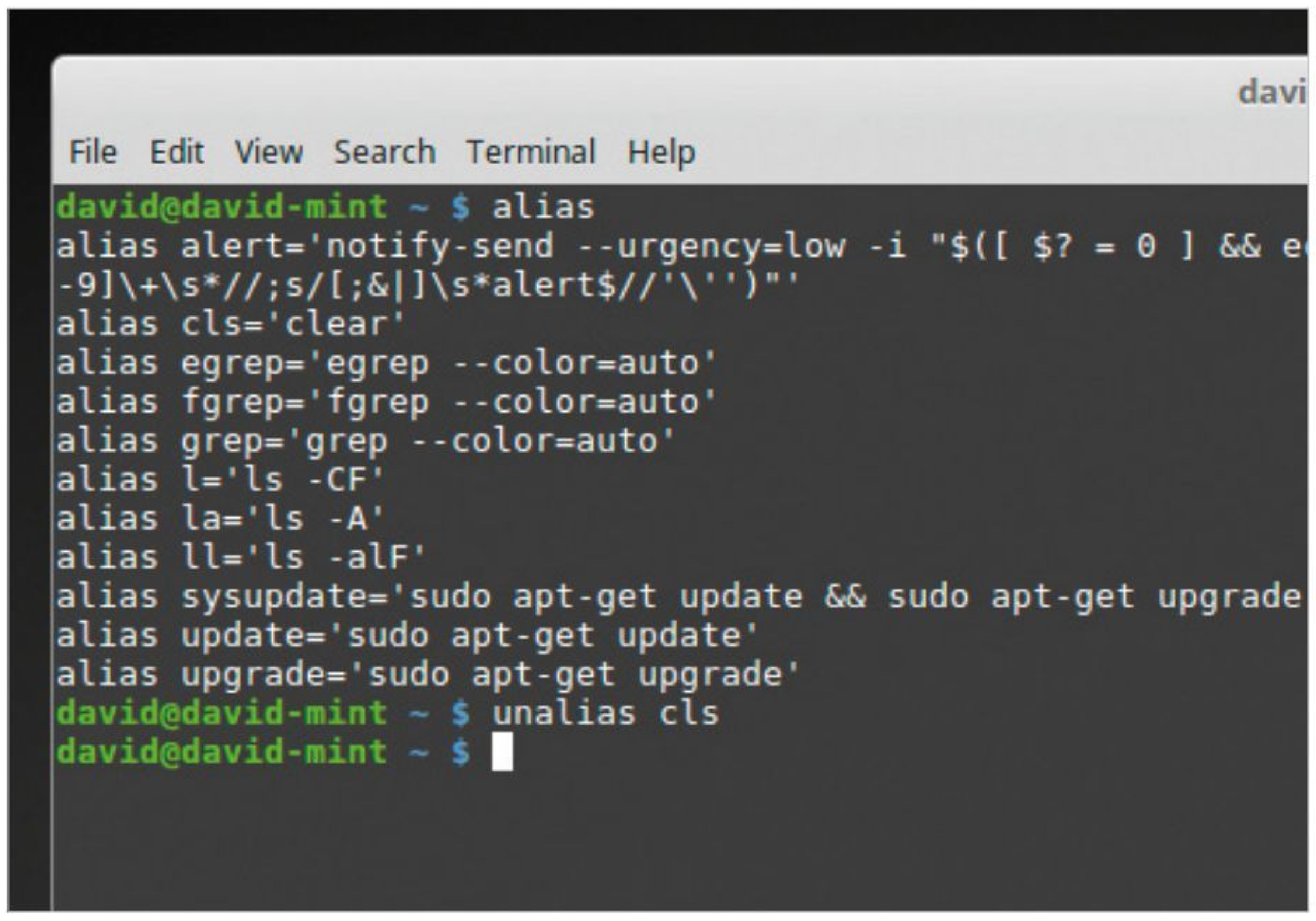
```
alias cd..=’cd ..’
alias cp=’cp -i’
alias dir=’ls’
alias md=’mkdir’
alias mv=’mv -i’
alias rd=’rmdir’
alias rm=’rm -i’
alias cls=’clear’
```



```
david@david-mint ~ $ alias cls='clear'
david@david-mint ~ $
```

STEP 7

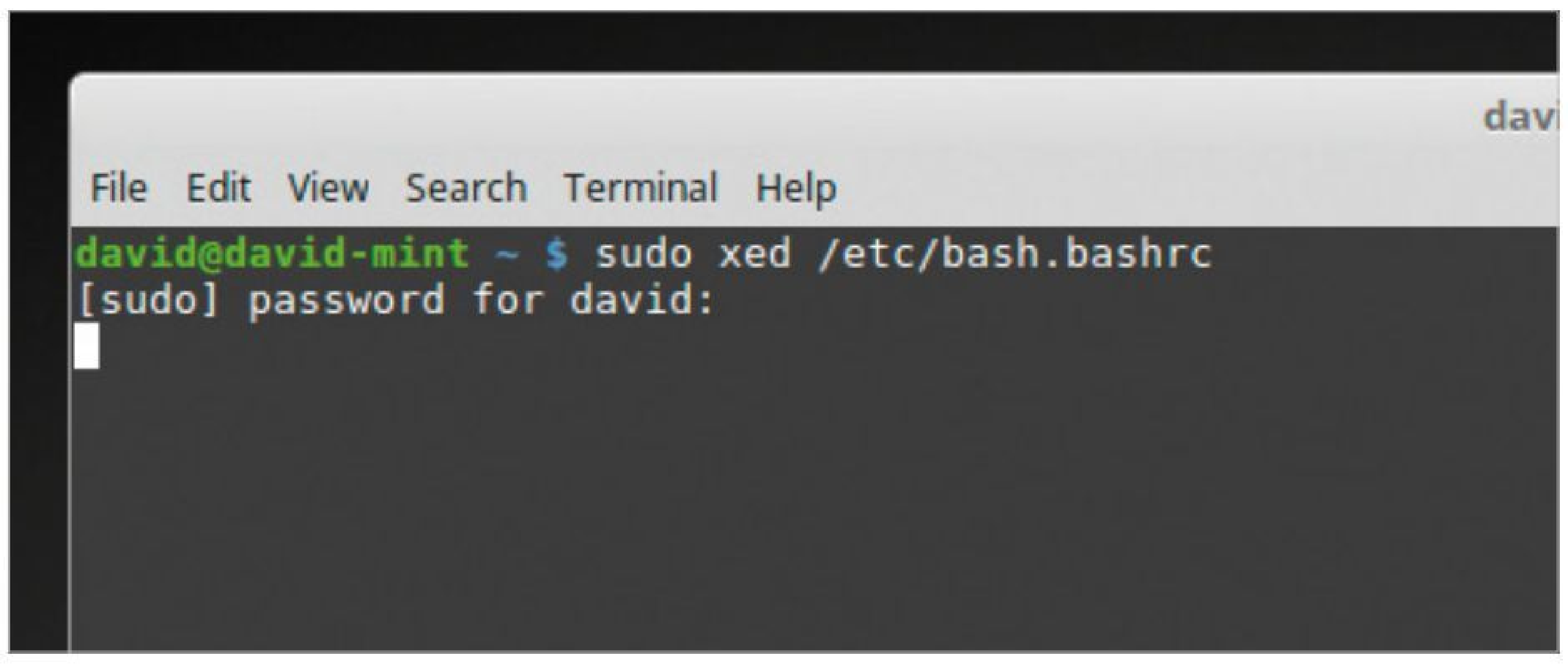
Using an alias is a great shortcut and method of customising your Mint setup. However, what if you want to remove an alias? Thankfully, the process is remarkably easy. Start by listing the currently created aliases with `alias`. Find the one you want to remove, and enter `unalias <command>`, where <command> is the name of the alias you’ve created.



```
david@david-mint ~ $ alias
alias alert='notify-send --urgency=low -i "$([ $? = 0 ] && e
-9]\+\s*//;s/[;&|]\s*alert$//'\'')"'
alias cls='clear'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -alF'
alias sysupdate='sudo apt-get update && sudo apt-get upgrade
alias update='sudo apt-get update'
alias upgrade='sudo apt-get upgrade'
david@david-mint ~ $ unalias cls
david@david-mint ~ $ █
```

STEP 8

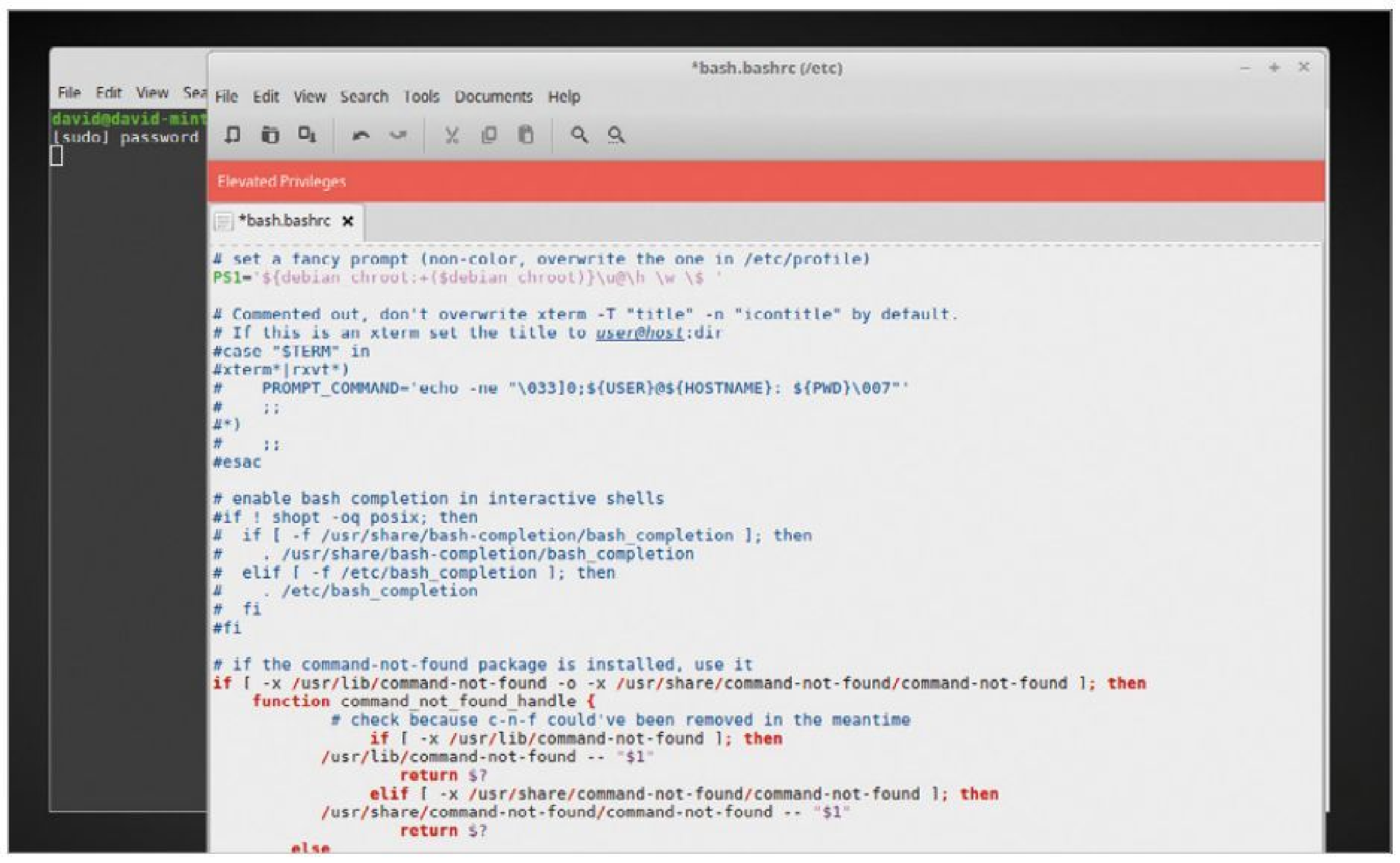
Sadly any aliases you create in the command line will be removed when you log out of Linux Mint; they’re only available during the life of your Mint session. There is a way though, that you’re able to make an alias persistent, using the Mint Xed text editor in this instance. Enter: `sudo xed /etc/bash.bashrc`.



```
david@david-mint ~ $ sudo xed /etc/bash.bashrc
[sudo] password for david:
█
```

STEP 9

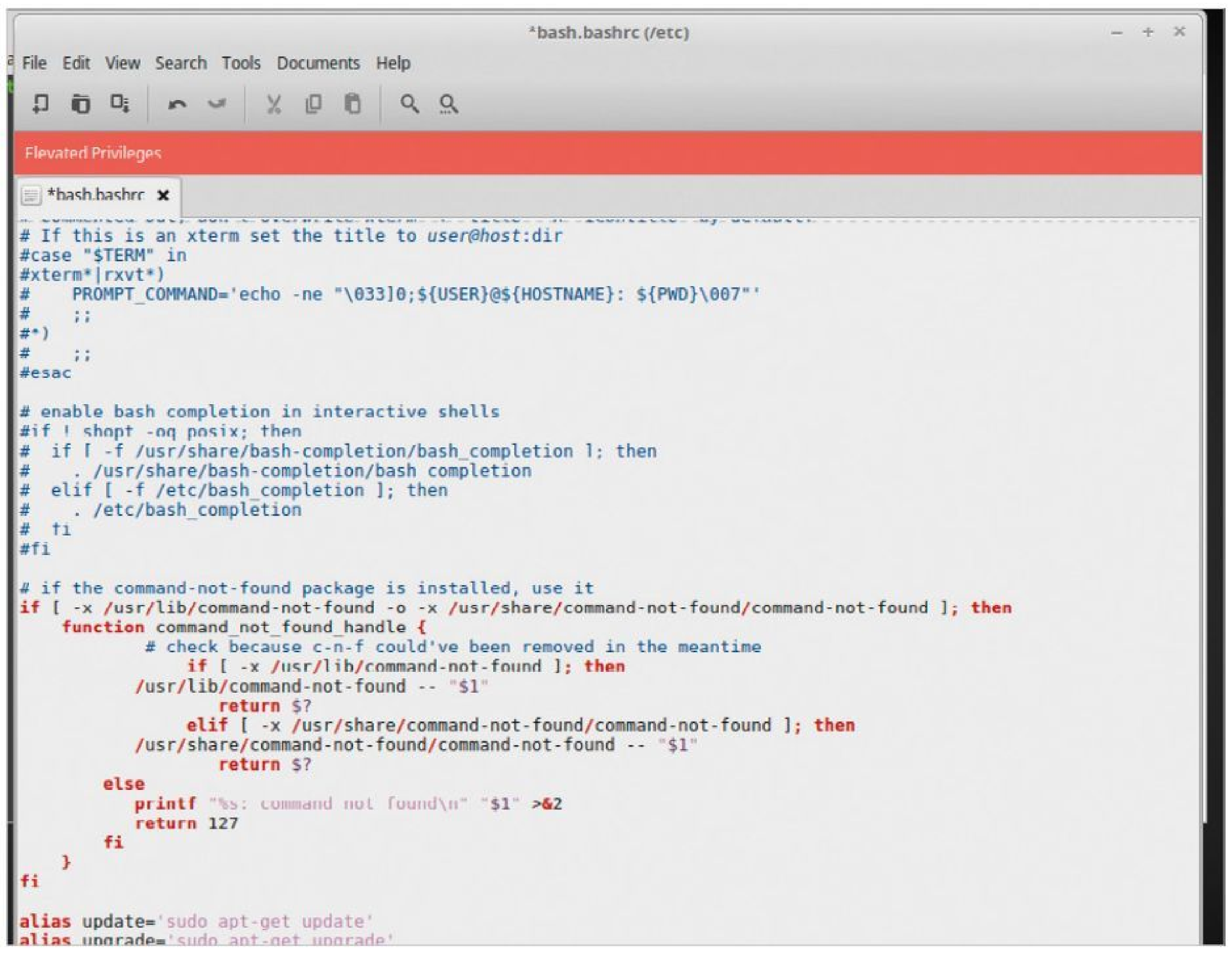
The bash.bashrc file is a system wide setting file that allows you to enter unique commands that are executed whenever the system starts. If you scroll to the bottom of the file, after the `fi` command, and press the Enter key a couple of times to create new lines.



```
# set a fancy prompt (non-color, overwrite the one in /etc/profile)
PS1='${debian_chroot:+($debian_chroot)}\u@\h \w \$ '

# Commented out, don't overwrite xterm -T "title" -n "icontitle" by default.
# If this is an xterm set the title to user@host:dir
#case "$TERM" in
#xterm*|rxvt*)
#    PROMPT_COMMAND='echo -ne "\033]0;${USER}@${HOSTNAME}: ${PWD}\007"'
#    ;;
#*)
#    ;;
#esac

# enable bash completion in interactive shells
#if ! shopt -oq posix; then
#  if [ -f /usr/share/bash-completion/bash_completion ]; then
#    . /usr/share/bash-completion/bash_completion
#  elif [ -f /etc/bash_completion ]; then
#    . /etc/bash_completion
#  fi
#fi

# if the command-not-found package is installed, use it
if [ -x /usr/lib/command-not-found -o -x /usr/share/command-not-found/command-not-found ]; then
    function command_not_found_handle {
            # check because c-n-f could've been removed in the meantime
                if [ -x /usr/lib/command-not-found ]; then
           /usr/lib/command-not-found -- "$1"
                   return $?
                elif [ -x /usr/share/command-not-found/command-not-found ]; then
           /usr/share/command-not-found/command-not-found -- "$1"
                   return $?
        else
```

STEP 10

You can now enter the aliases you want to be persistent in the newly created blank area of the bash.bashrc file. For example, we’ve added `update`, `upgrade`, `sysupdate` and `cls` as our aliases. When you’re done, click File > Save, then File > Quit. Reboot the system and your aliases will be a permanent feature of Linux Mint.



```
# If this is an xterm set the title to user@host:dir
#case "$TERM" in
#xterm*|rxvt*)
#    PROMPT_COMMAND='echo -ne "\033]0;${USER}@${HOSTNAME}: ${PWD}\007"'
#    ;;
#*)
#    ;;
#esac

# enable bash completion in interactive shells
#if ! shopt -oq posix; then
#  if [ -f /usr/share/bash-completion/bash_completion ]; then
#    . /usr/share/bash-completion/bash completion
#  elif [ -f /etc/bash_completion ]; then
#    . /etc/bash_completion
#  fi
#fi

# if the command-not-found package is installed, use it
if [ -x /usr/lib/command-not-found -o -x /usr/share/command-not-found/command-not-found ]; then
    function command_not_found_handle {
            # check because c-n-f could've been removed in the meantime
                if [ -x /usr/lib/command-not-found ]; then
           /usr/lib/command-not-found -- "$1"
                   return $?
                elif [ -x /usr/share/command-not-found/command-not-found ]; then
           /usr/share/command-not-found/command-not-found -- "$1"
                   return $?
        else
           printf "%s: command not found\n" "$1" >&2
           return 127
        fi
    }
fi

alias update='sudo apt-get update'
alias upgrade='sudo apt-get upgrade'
```

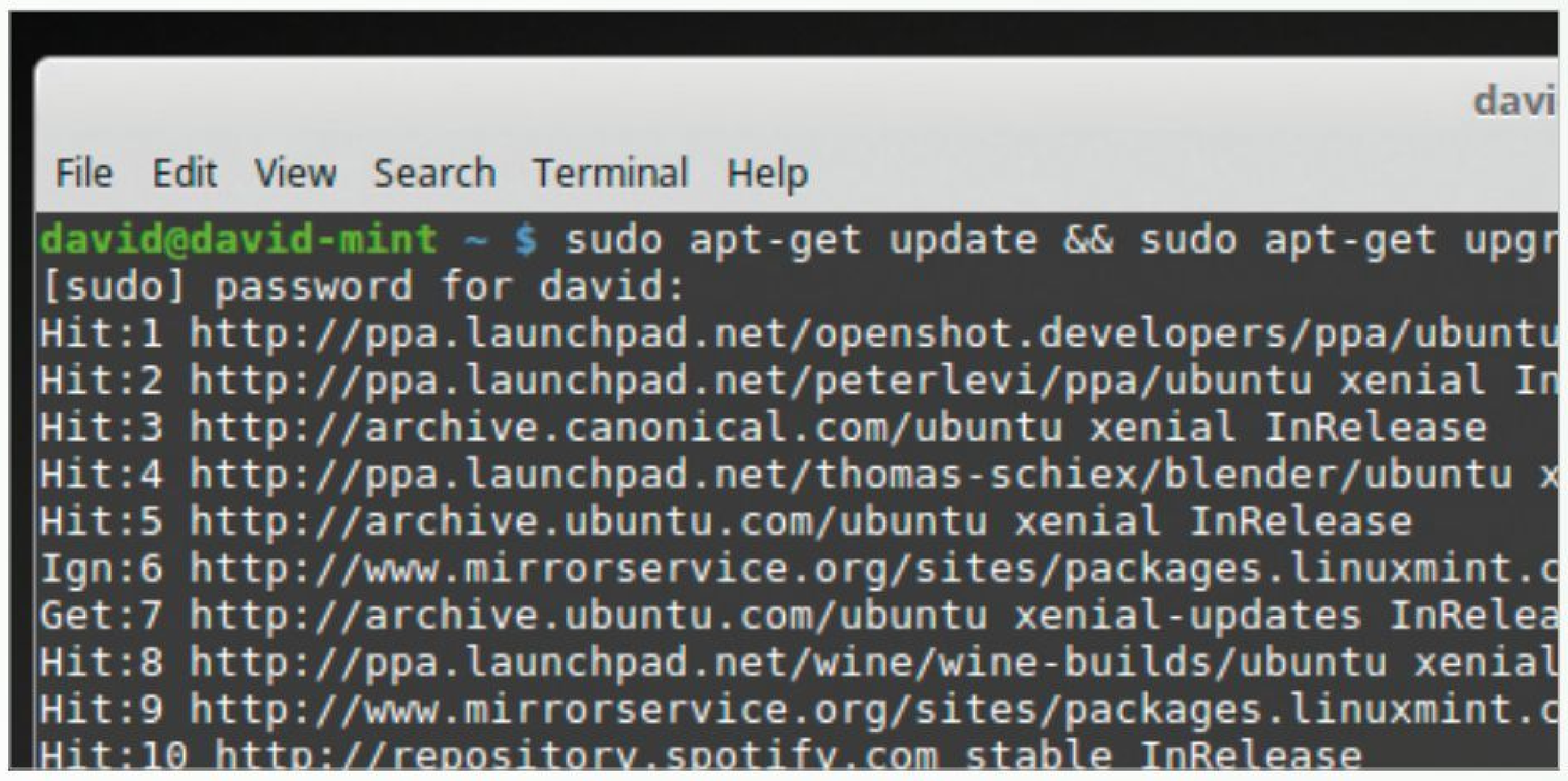
Creating Bash Scripts – Part 1

Eventually, as you advance with Linux Mint, you'll want to start creating your own automated tasks and programs. These are essentially scripts, Bash Shell scripts to be exact, and they work in the same way as a DOS Batch file does, or any other programming language.

GET SCRIPTING

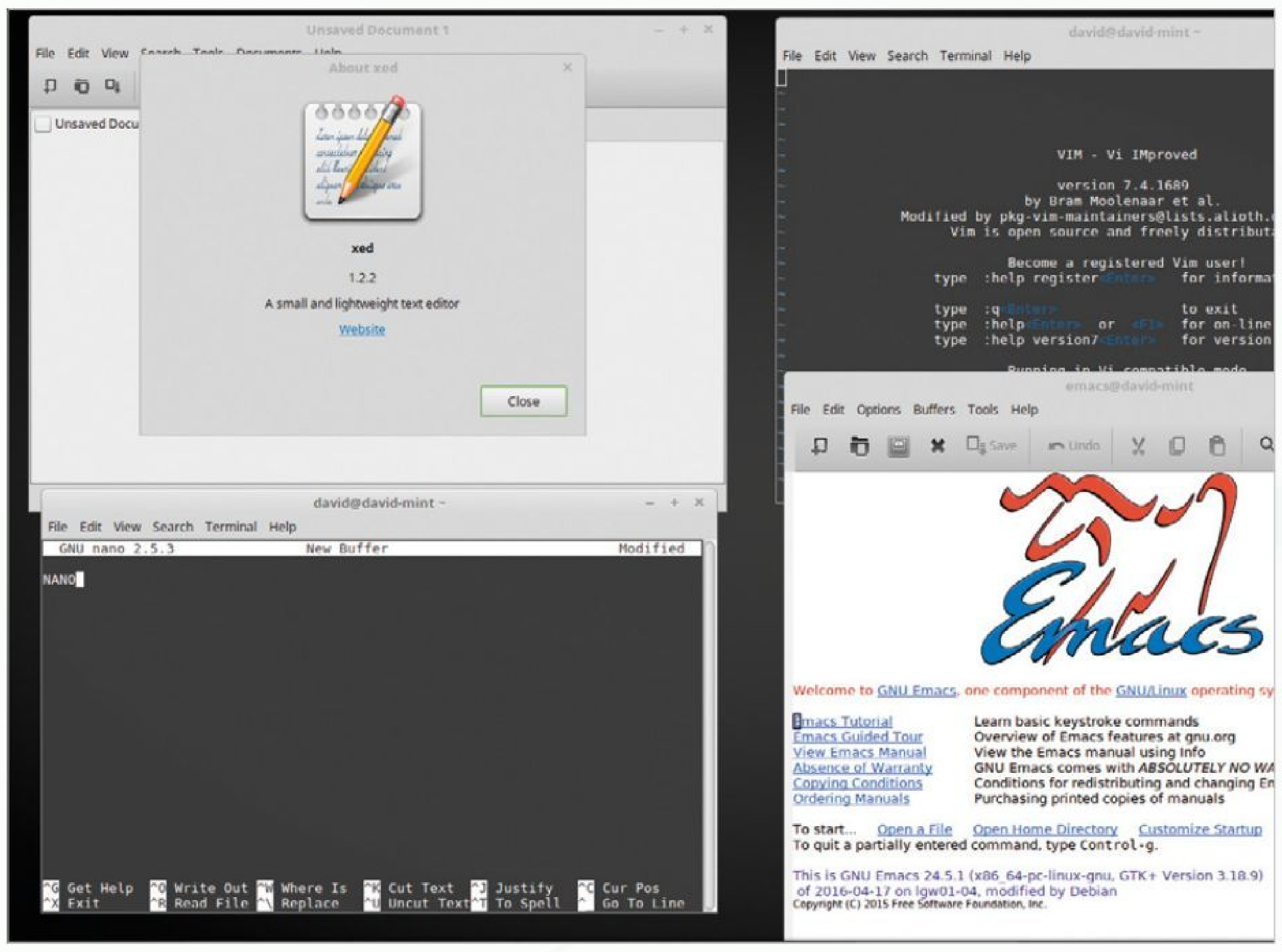
A Bash script is simply a series of commands that Mint will run through to complete a certain task. They can be simple or remarkably complex, it all depends on the situation.

STEP 1 You'll be working within the Terminal and with a text editor throughout the coming pages. There are alternatives to the text editor, which we'll look at in a moment but for the sake of ease, we'll be doing our examples in Xed. Before you begin, however, run through the customary update check: `sudo apt-get update && sudo apt-get upgrade`.



```
david@david-mint ~ $ sudo apt-get update && sudo apt-get upgr
[sudo] password for david:
Hit:1 http://ppa.launchpad.net/openshot.developers/ppa/ubuntu
Hit:2 http://ppa.launchpad.net/peterlevi/ppa/ubuntu xenial In
Hit:3 http://archive.canonical.com/ubuntu xenial InRelease
Hit:4 http://ppa.launchpad.net/thomas-schiex/blender/ubuntu x
Hit:5 http://archive.ubuntu.com/ubuntu xenial InRelease
Ign:6 http://www.mirrorservice.org/sites/packages.linuxmint.c
Get:7 http://archive.ubuntu.com/ubuntu xenial-updates InRelea
Hit:8 http://ppa.launchpad.net/wine/wine-builds/ubuntu xenial
Hit:9 http://www.mirrorservice.org/sites/packages.linuxmint.c
Hit:10 http://repository.spotify.com stable InRelease
```

STEP 2 There are several text editors we can use to create a Bash script: Xed, Vi, Nano, Vim, GNU Emacs and so on. In the end it all comes down to personal preference. Our use of Xed is purely due to making it easier to read the script in the screenshots you see below.


Unsaved Document 1
File Edit View Search Tools Documents Help
Unsaved Docu
About xed
Close
david@david-mint ~
File Edit View Search Terminal Help
david@david-mint ~
File Edit View Search Terminal Help
emacs@david-mint
File Edit Options Buffers Tools Help
Save
Undo
Emacs

xed

1.2.2

A small and lightweight text editor

Website

```
  GNU nano 2.5.3               New Buffer                      Modified

NANO

^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text^T To Spell ^_ Go To Line
```

```
                    VIM - Vi IMproved

                    version 7.4.1689
                by Bram Moolenaar et al.
  Modified by pkg-vim-maintainers@lists.alioth.
     Vim is open source and freely distribut

           Become a registered Vim user!
  type  :help register<Enter>   for informa

  type  :q<Enter>               to exit
  type  :help<Enter>  or  <F1>  for on-line
  type  :help version7<Enter>   for version

           Running in Vi compatible mode
```

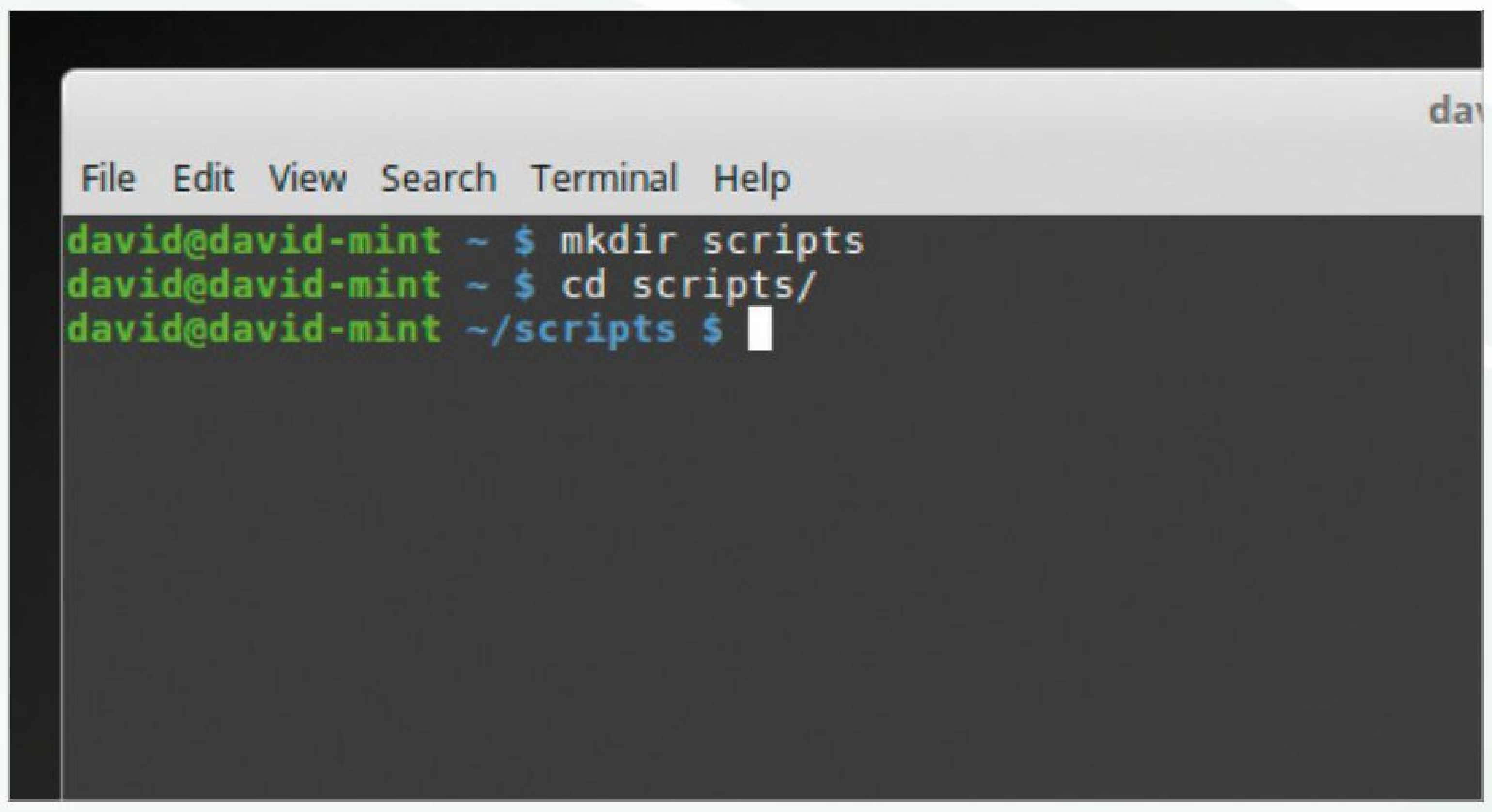
Welcome to GNU Emacs, one component of the GNU/Linux operating sy

Emacs Tutorial	Learn basic keystroke commands
Emacs Guided Tour	Overview of Emacs features at gnu.org
View Emacs Manual	View the Emacs manual using Info
Absence of Warranty	GNU Emacs comes with *ABSOLUTELY NO WA*
Copying Conditions	Conditions for redistributing and changing Em
Ordering Manuals	Purchasing printed copies of manuals

To start... Open a File Open Home Directory Customize Startup
To quit a partially entered command, type `Control-g`.

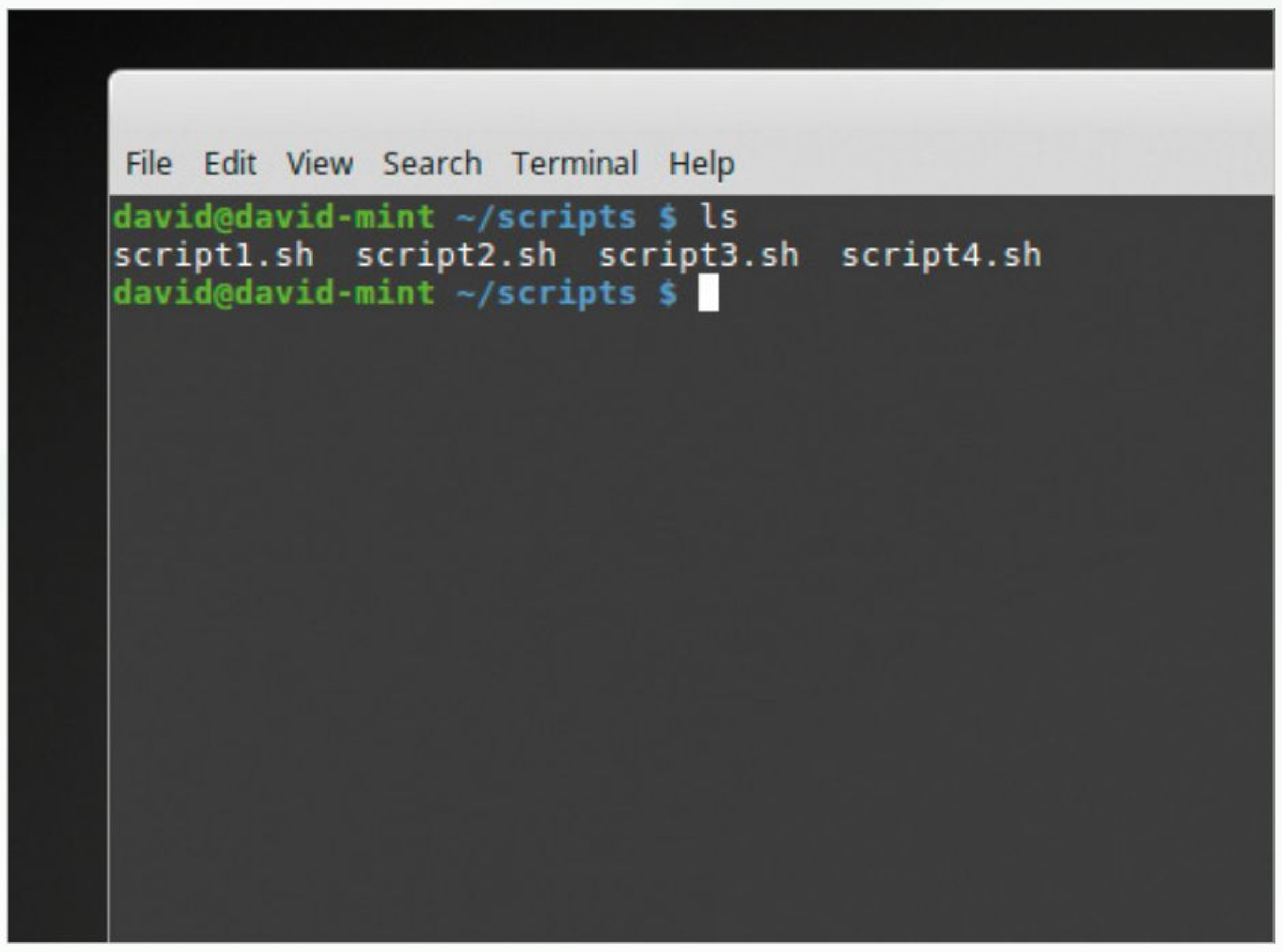
This is GNU Emacs 24.5.1 (x86_64-pc-linux-gnu, GTK+ Version 3.18.9)
of 2016-04-17 on lgw01-04, modified by Debian
Copyright (C) 2015 Free Software Foundation, Inc.

STEP 3 To begin with, and before you start to write any scripts, you need to create a folder where you can put all our scripts into. Start with `mkdir scripts`, and enter the folder `cd scripts/`. This will be our working folder and from here you can create sub-folders if you want of each script you create.



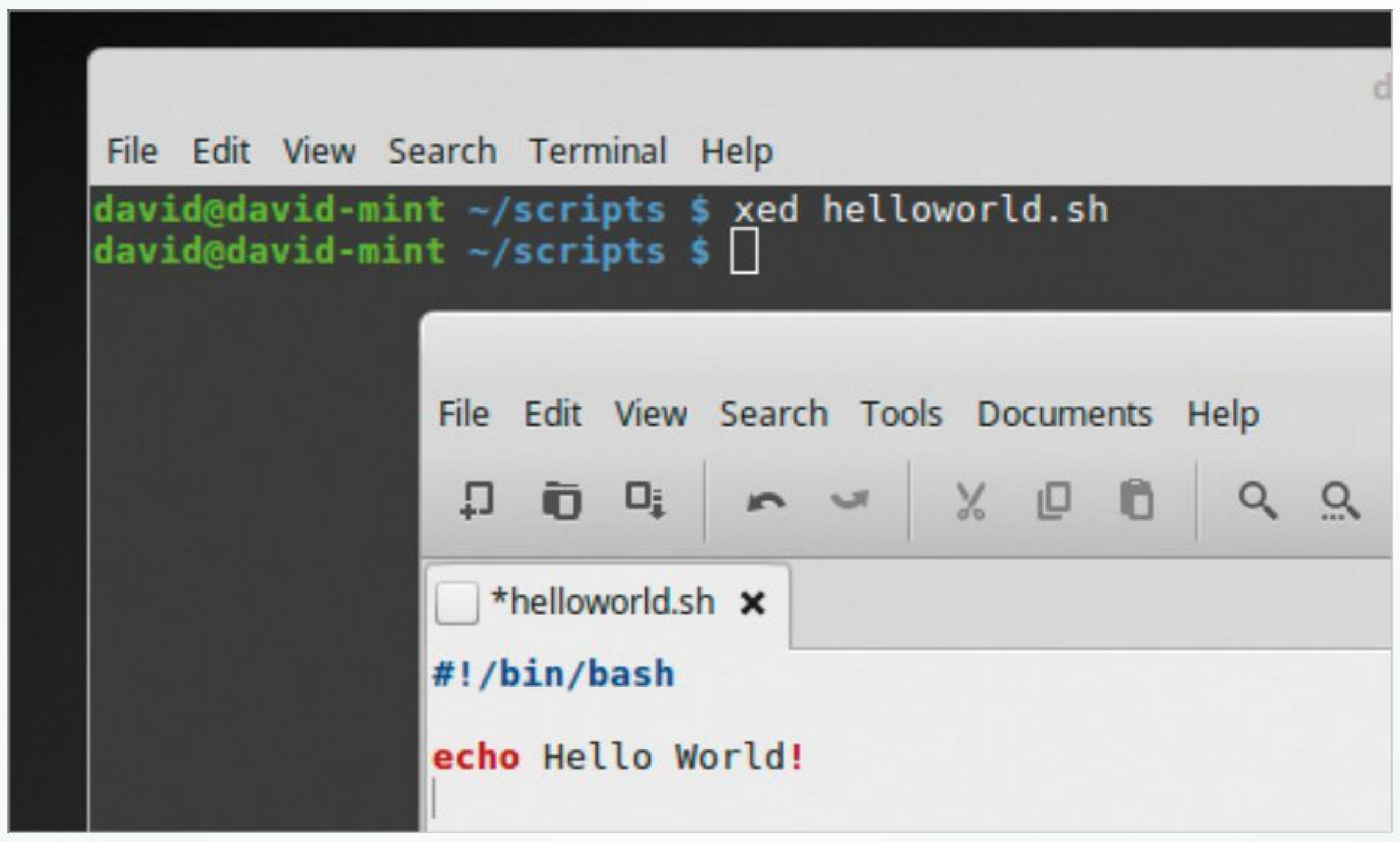
```
david@david-mint ~ $ mkdir scripts
david@david-mint ~ $ cd scripts/
david@david-mint ~/scripts $ 
```

STEP 4 Windows users will be aware that in order for a batch file to work, as in be executed and follow the programming within it, it needs to have a .BAT file extension. Linux is an extension-less operating system but the convention is to give scripts a .sh extension.



```
david@david-mint ~/scripts $ ls
script1.sh  script2.sh  script3.sh  script4.sh
david@david-mint ~/scripts $ 
```

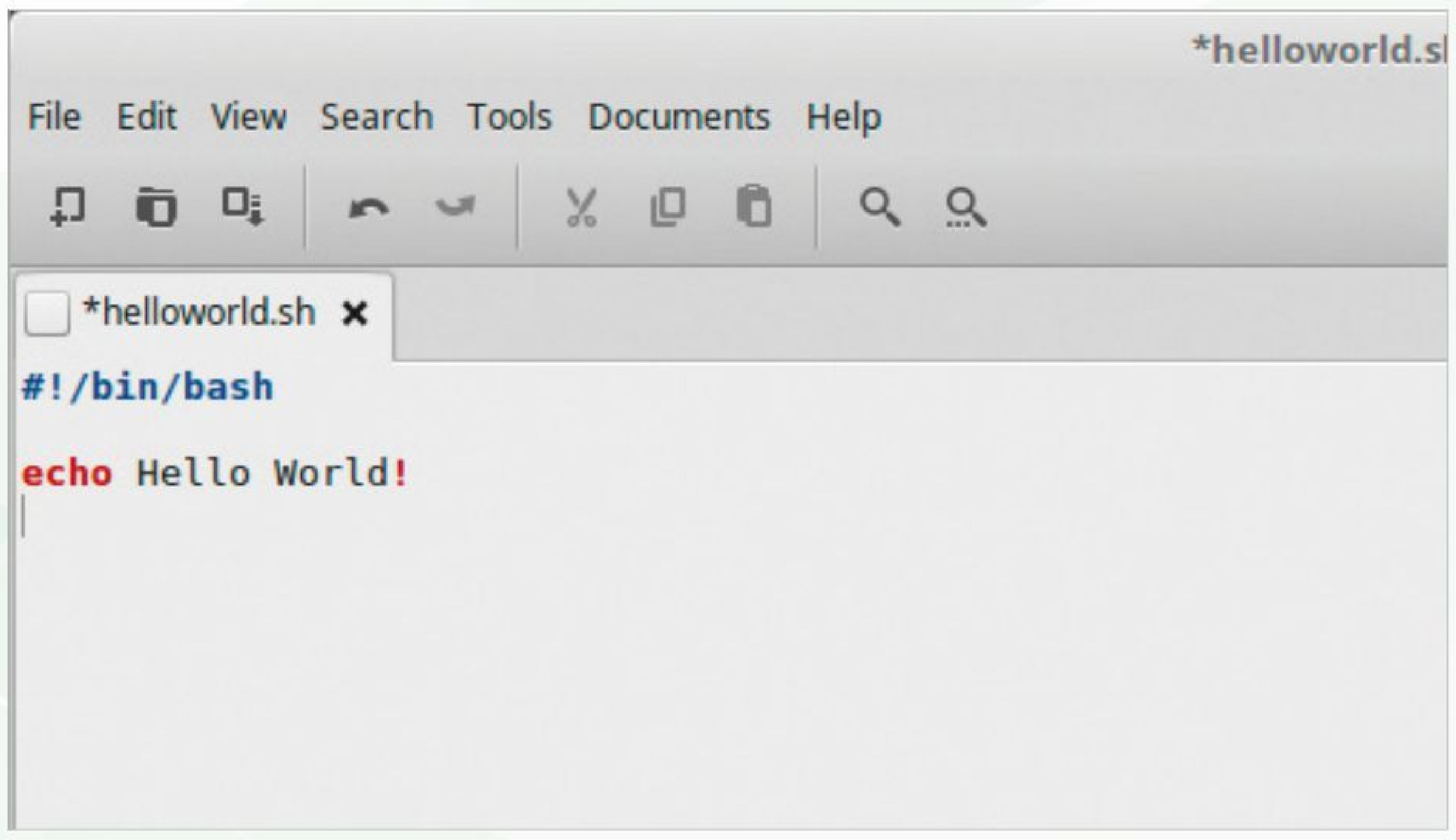
STEP 5 Let's start with a simple script to output something to the Terminal. Enter `xed helloworld.sh`. This will launch Xed and create a file called helloworld.sh. In Xed, enter the following: `#!/bin/bash`, then on a new line: `echo Hello World!`.



```
david@david-mint ~/scripts $ xed helloworld.sh
david@david-mint ~/scripts $ 
```

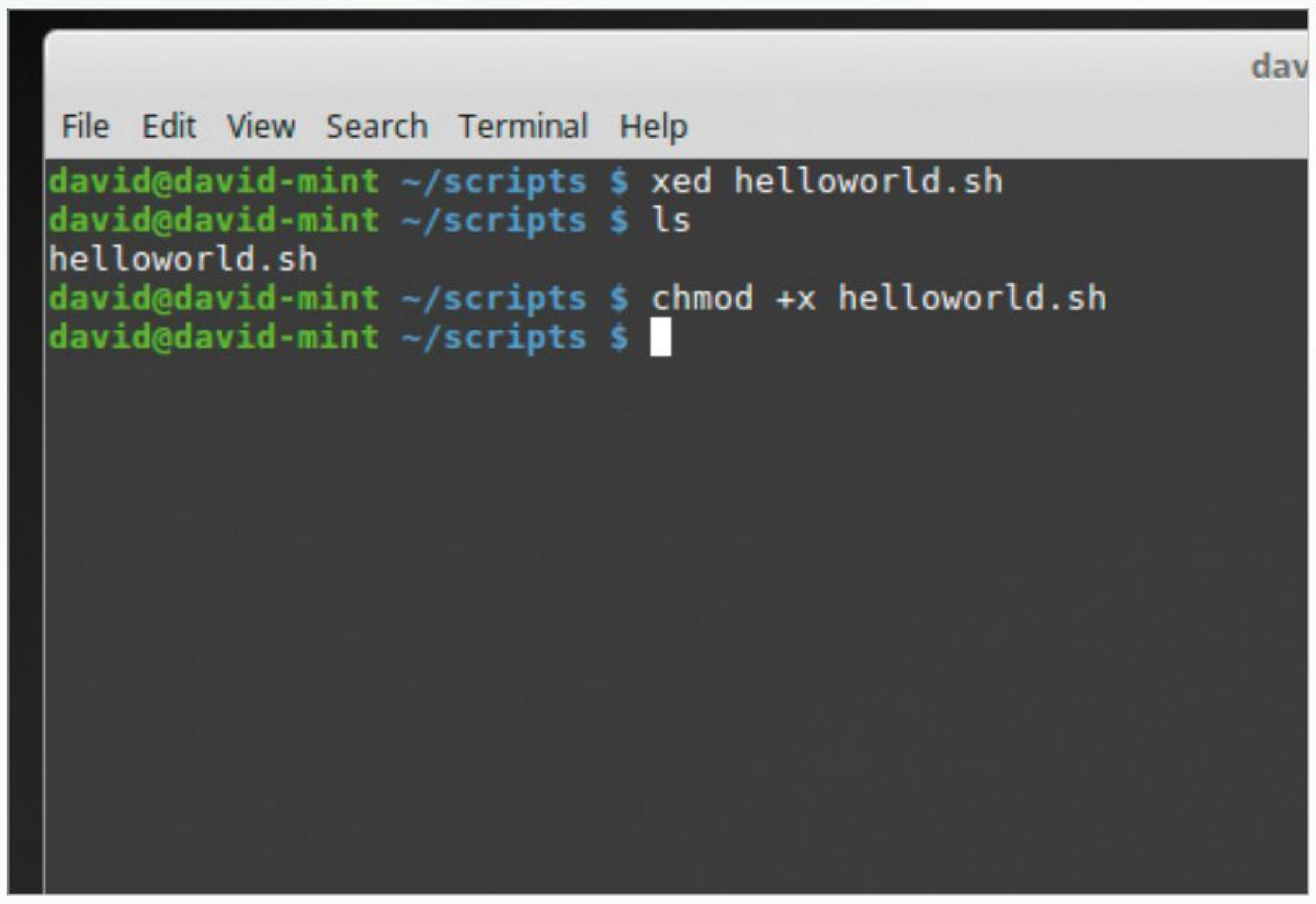
```
#!/bin/bash

echo Hello World!
```

STEP 6 The `#!/bin/bash` line tells the system what Shell you're going to be using, in this case Bash. The hash (#) denotes a comment line, one that is ignored by the system, the exclamation mark (!) means that the comment is bypassed and will force the script to execute the line as a command. This is also known as a Hash-Bang.



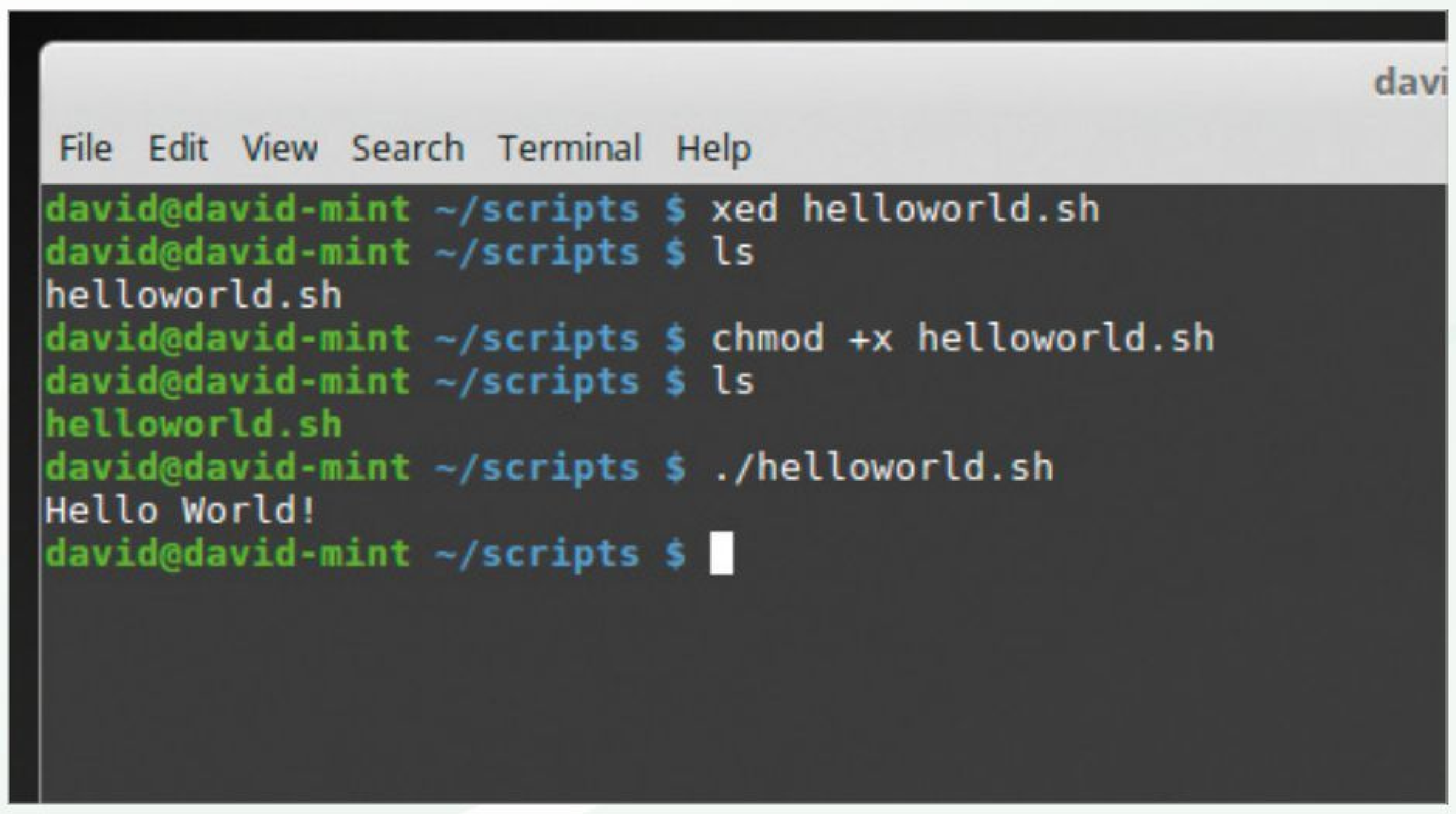
```
#!/bin/bash

echo Hello World!
```

STEP 7 You can save this file, clicking File > Save, and exit back to the Terminal. Entering `ls`, will reveal the script in the folder. To make any script executable, and able to run, you need to modify its permissions. Do this with `chmod +x helloworld.sh`. You need to do this with every script you create.



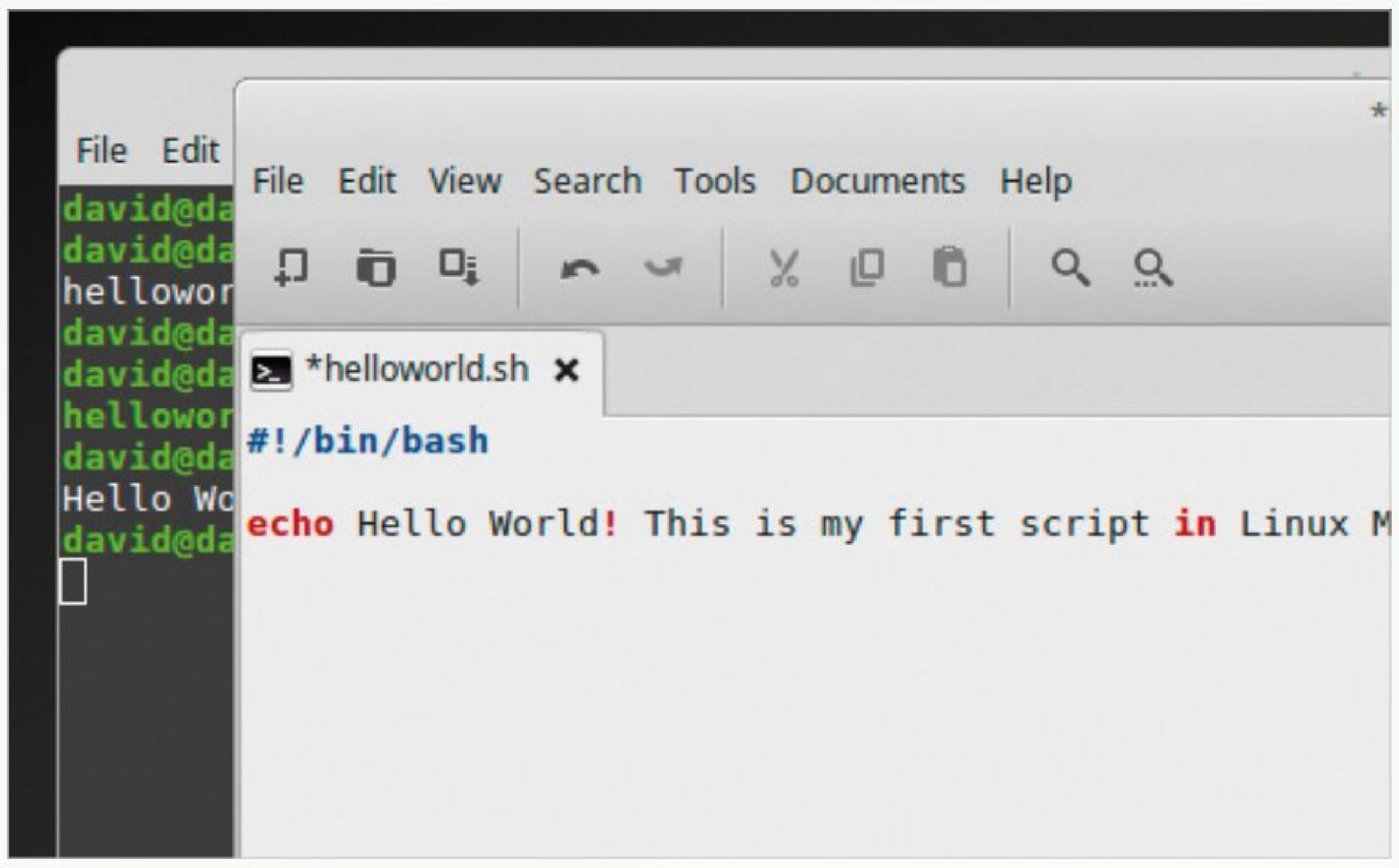
```
david@david-mint ~/scripts $ xed helloworld.sh
david@david-mint ~/scripts $ ls
helloworld.sh
david@david-mint ~/scripts $ chmod +x helloworld.sh
david@david-mint ~/scripts $ 
```

STEP 8 When you enter `ls` again, you can see that the helloworld.sh script has now turned from being white to green, meaning that it's now an executable file. To run the script, in other words make it do the things you've typed into it, enter: `./helloworld.sh`.



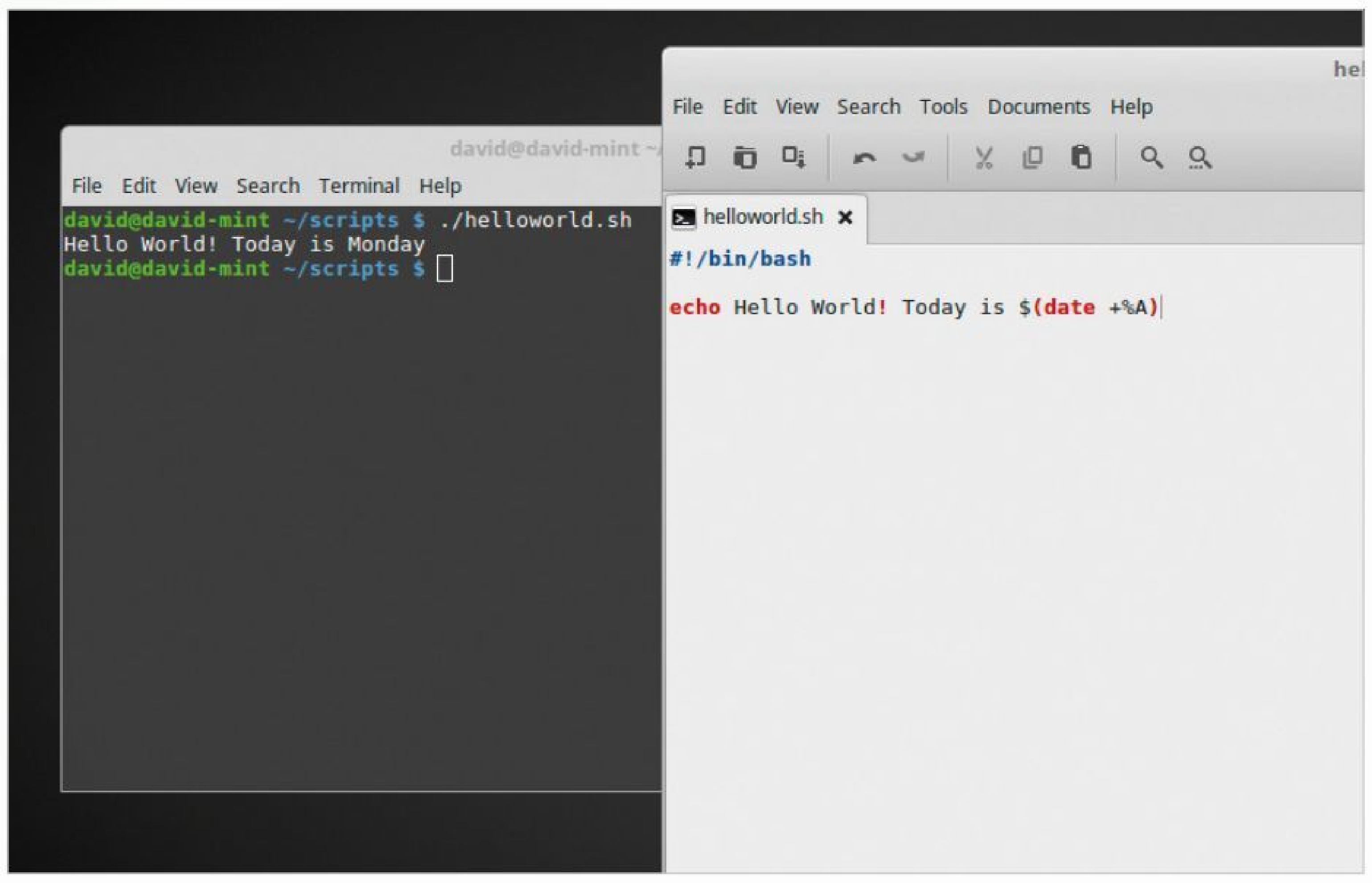
```
david@david-mint ~/scripts $ xed helloworld.sh
david@david-mint ~/scripts $ ls
helloworld.sh
david@david-mint ~/scripts $ chmod +x helloworld.sh
david@david-mint ~/scripts $ ls
helloworld.sh
david@david-mint ~/scripts $ ./helloworld.sh
Hello World!
david@david-mint ~/scripts $ 
```

STEP 9 Although it's not terribly exciting, the words 'Hello World!' should now be displayed in the Terminal. The echo command is responsible for outputting the words after it in the Terminal, as we move on you can make the echo command output to other sources.



```
#!/bin/bash

echo Hello World! This is my first script in Linux M
```

STEP 10 Think of echo as the old BASIC Print command. It displays either text, numbers or any variables that are stored in the system, such as the current system date. Try this example: `echo Hello World! Today is $(date +%A)`. The $(date +%A) is calling the system variable that stores the current day of the week.



```
david@david-mint ~/scripts $ ./helloworld.sh
Hello World! Today is Monday
david@david-mint ~/scripts $ 
```

```
#!/bin/bash

echo Hello World! Today is $(date +%A)
```

18+

WHAT IS
AVAXHOME?

AVAXHOME -

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Unlimited satisfaction one low price
Cheap constant access to piping hot media
Protect your downloadings from Big brother
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One site

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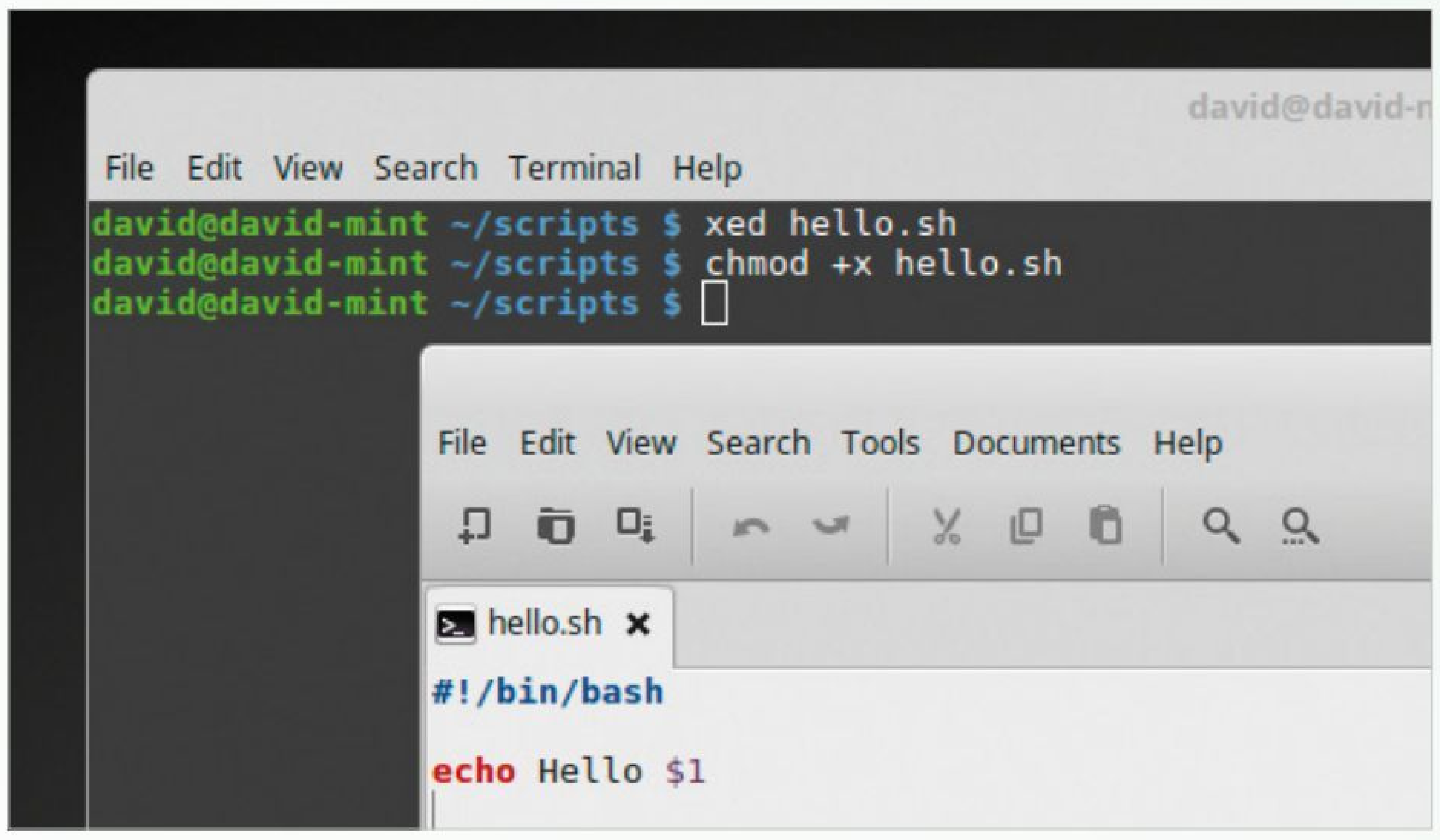
Creating Bash Scripts – Part 2

Previously we looked at creating your first Bash script, Hello World, and adding a system variable. Now you can expand these and see what you can do when you start to play around with creating your own unique variables.

VARIABLES

Just as in every other programming language a Bash script can store and call certain variables from the system, either generic or user created.

STEP 1 Let's start by creating a new script called hello.sh; `xed hello.sh`. In it enter: `#!/bin/bash`, then, `echo Hello $1`. Save the file and exit Xed. Back in the Terminal make the script executable with: `chmod +x hello.sh`.

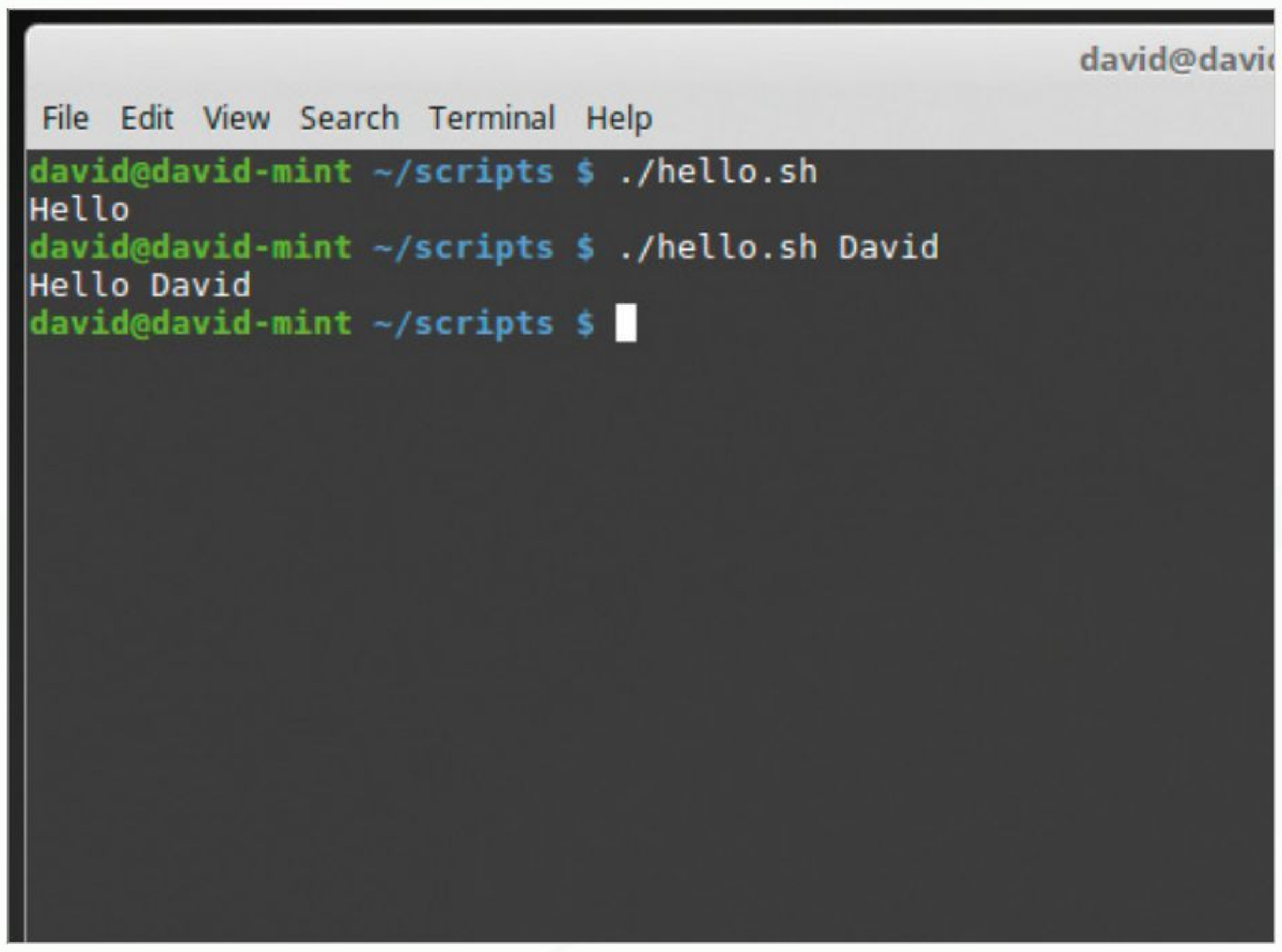


```
david@david-mint ~/scripts $ xed hello.sh
david@david-mint ~/scripts $ chmod +x hello.sh
david@david-mint ~/scripts $ 
```

```
#!/bin/bash

echo Hello $1
```

File Edit View Search Terminal Help
File Edit View Search Tools Documents Help
hello.sh

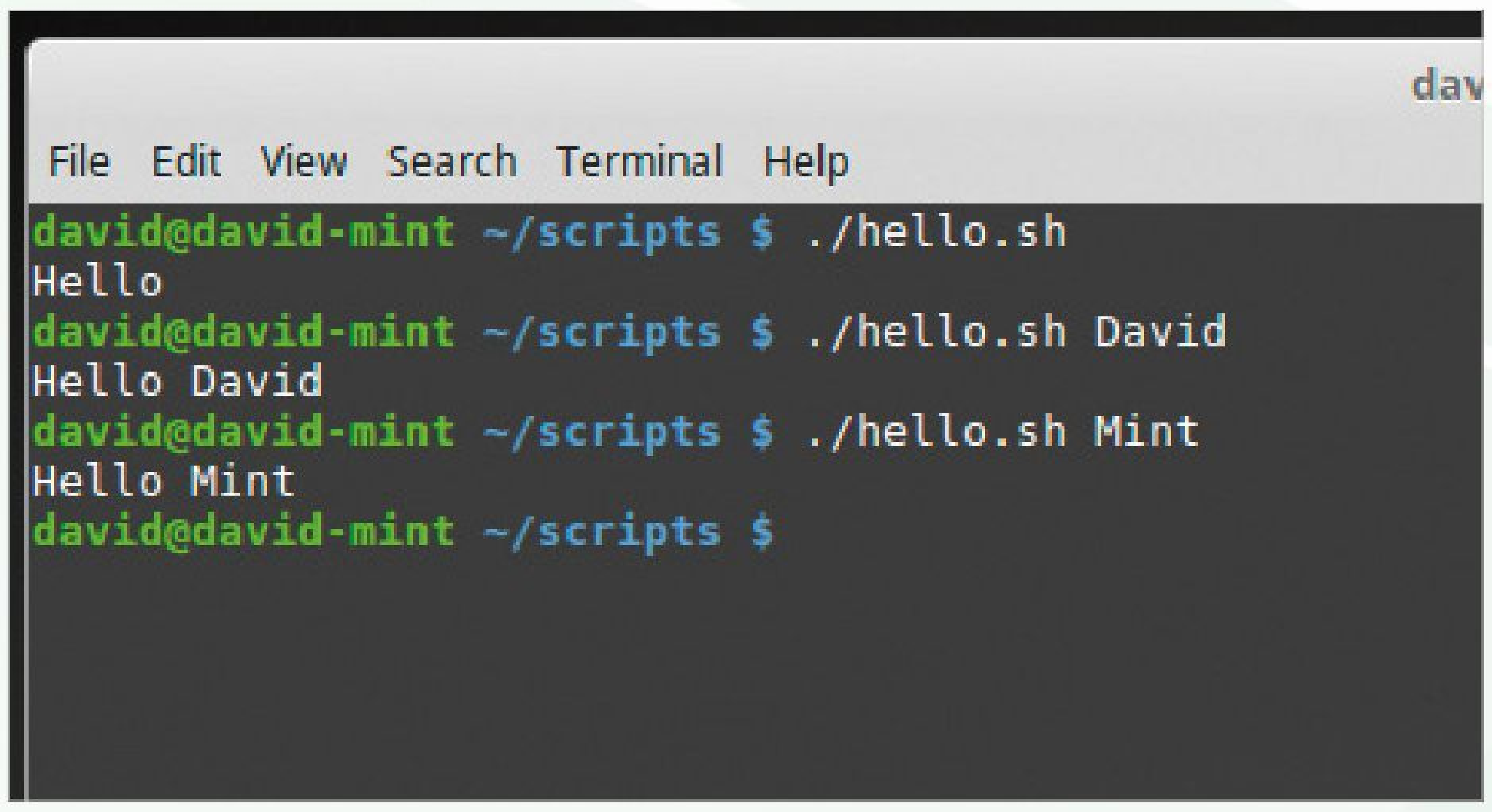
STEP 2 As the script is now executable, run it with `./hello.sh`. Now, as you probably expected a simple 'Hello' is displayed in the Terminal. However, if you then issue the command with a variable, it begins to get interesting. For example, try `./hello.sh David`.



```
david@david-mint ~/scripts $ ./hello.sh
Hello
david@david-mint ~/scripts $ ./hello.sh David
Hello David
david@david-mint ~/scripts $ 
```

File Edit View Search Terminal Help

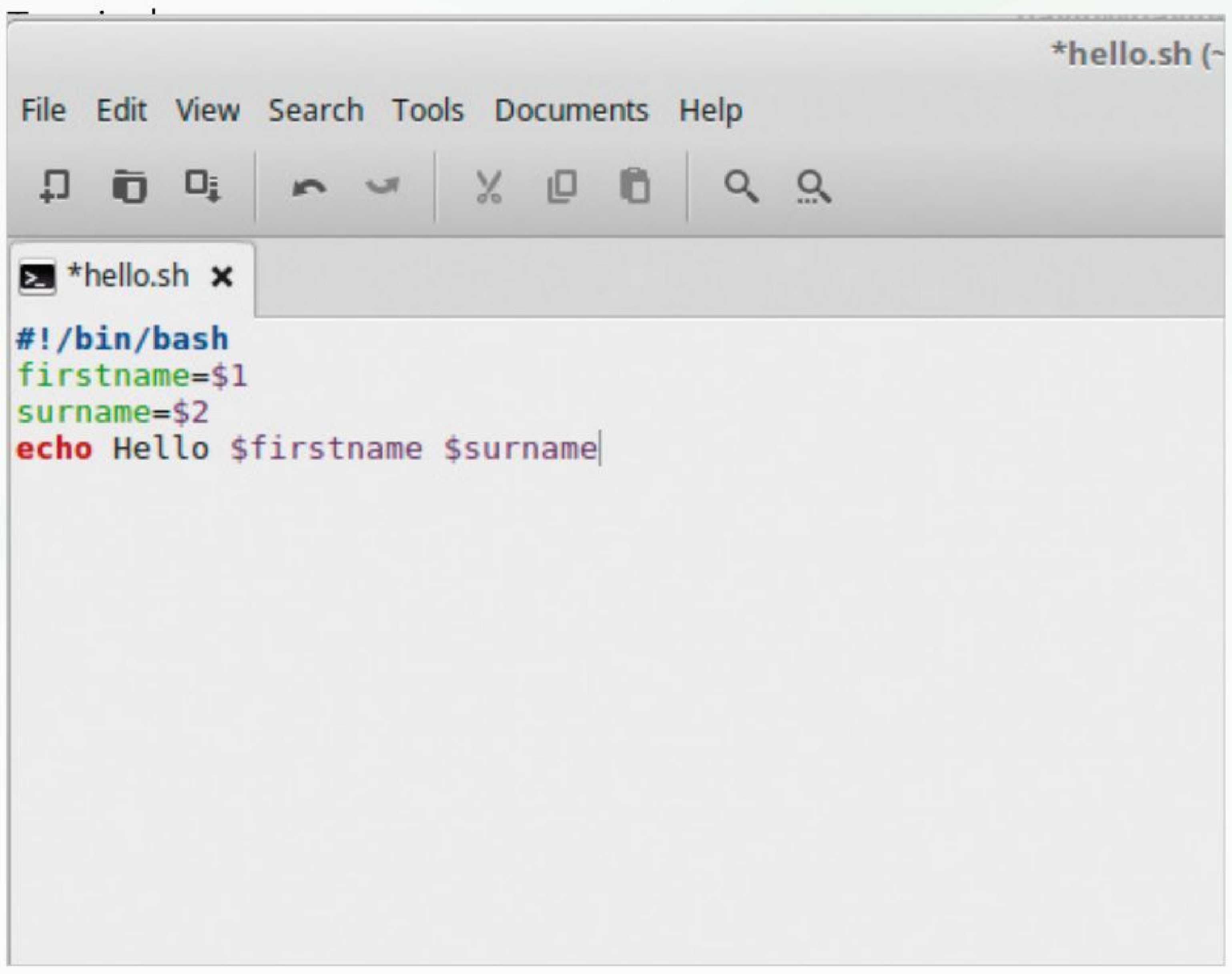
STEP 3 The output now will be Hello David. This is because Bash automatically assigns variables for the user, which are then held and passed to the script. So the variable '$1' now holds 'David'. You can change the variable by entering something different: `./hello.sh Mint`.



```
david@david-mint ~/scripts $ ./hello.sh
Hello
david@david-mint ~/scripts $ ./hello.sh David
Hello David
david@david-mint ~/scripts $ ./hello.sh Mint
Hello Mint
david@david-mint ~/scripts $
```

File Edit View Search Terminal Help

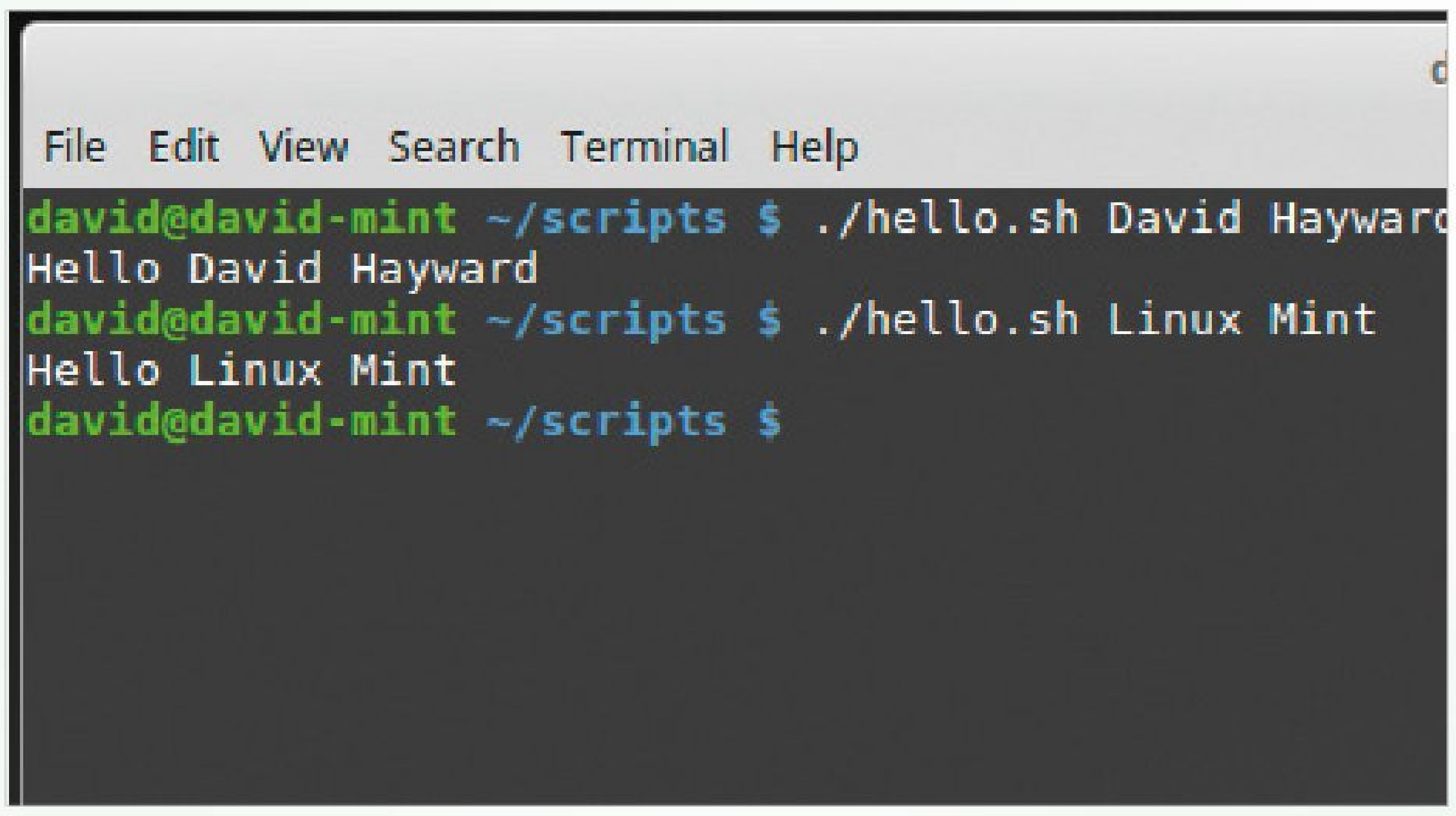
STEP 4 You can even rename variables. Modify the hello.sh script with the following: `firstname=$1`, `surname=$2`, `echo Hello $firstname $surname`. Putting each statement on a new line. Save the script and exit back into the



```
#!/bin/bash
firstname=$1
surname=$2
echo Hello $firstname $surname
```

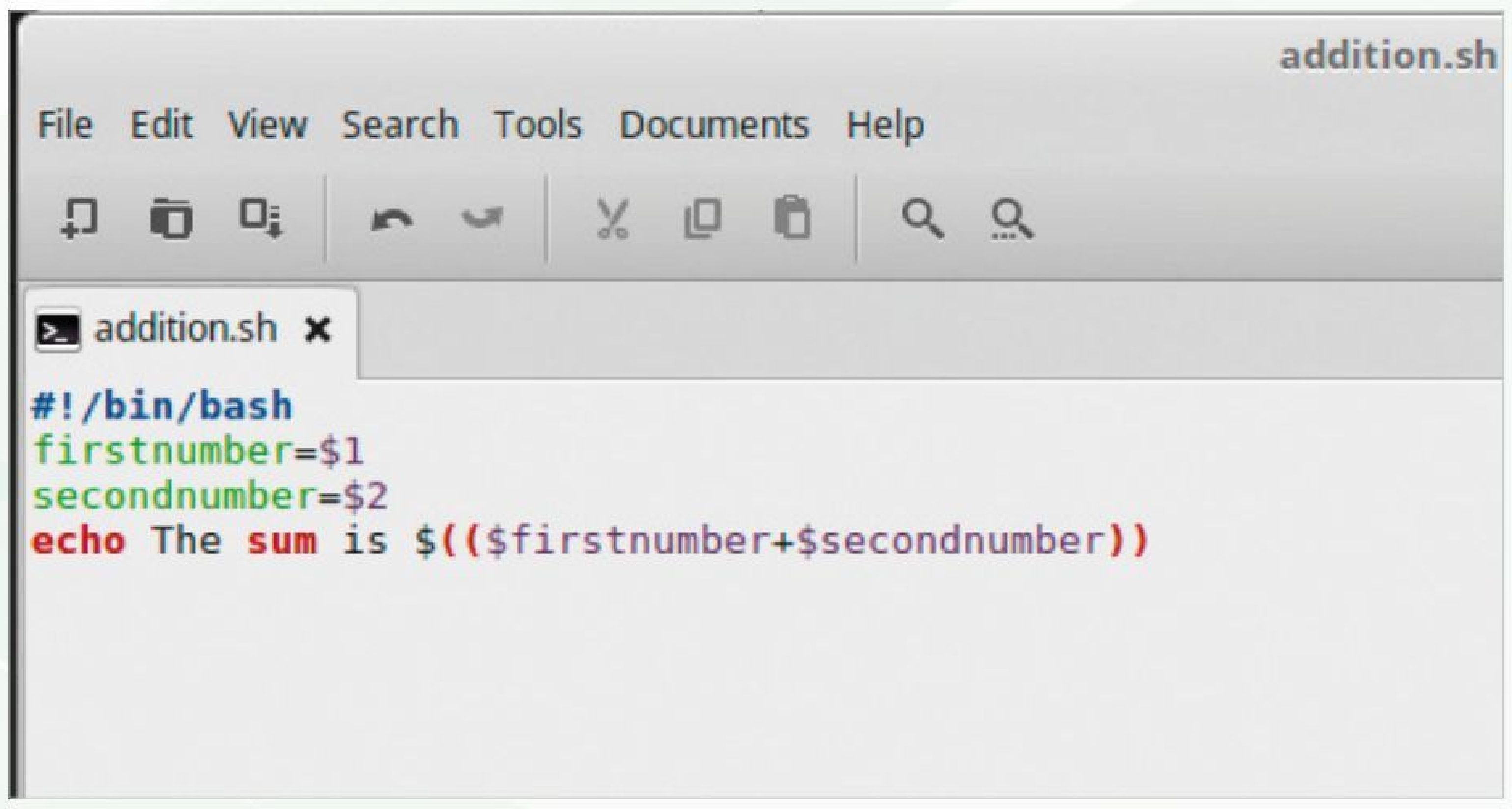
*hello.sh
File Edit View Search Tools Documents Help
*hello.sh

STEP 5 When you run the script now you can use two custom variables: `./hello.sh David Hayward`. Naturally change the two variables with your own name; unless you're also called David Hayward. At the moment we're just printing the contents, so let's expand the two-variable use a little.


File Edit View Search Terminal Help

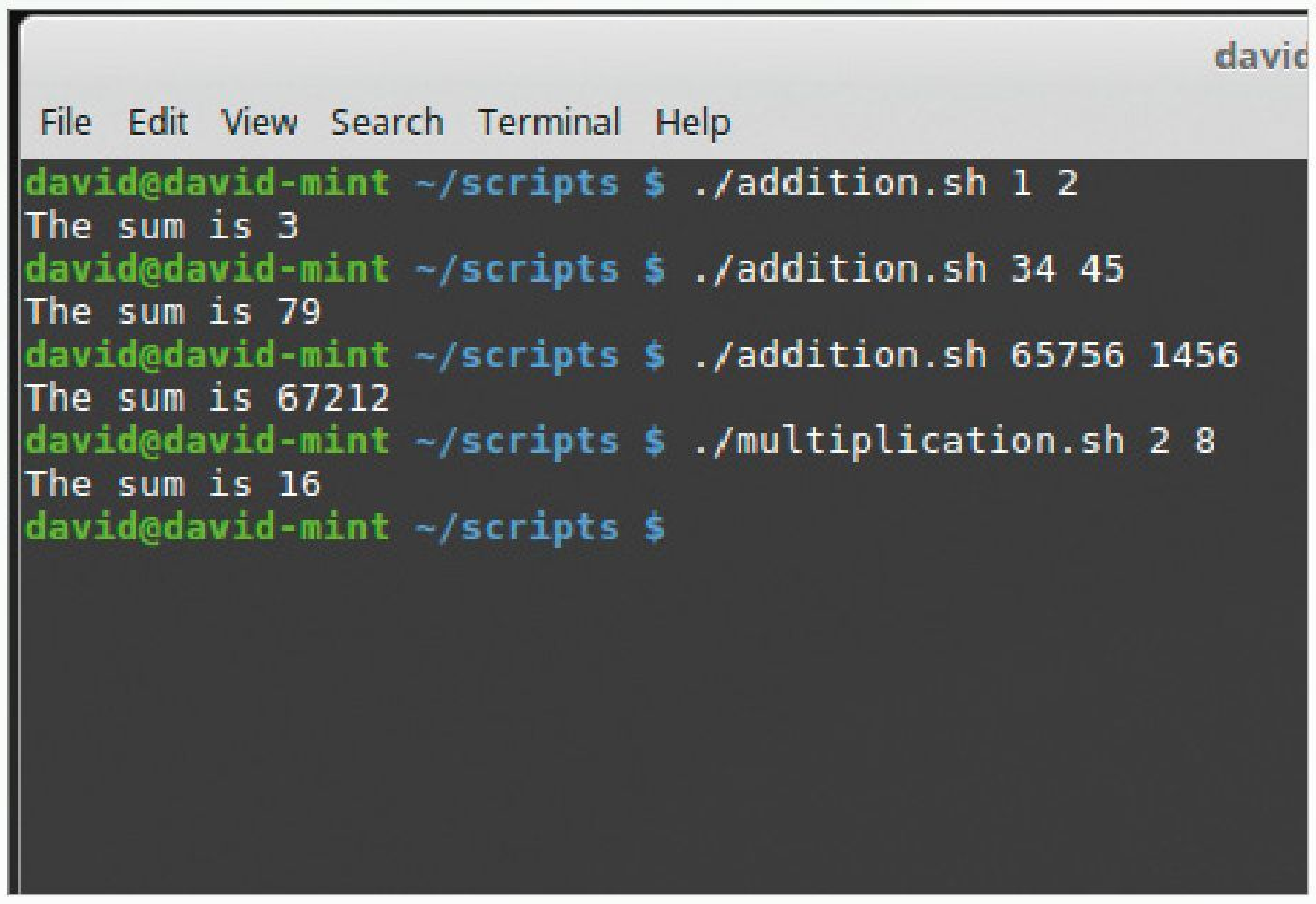
```
david@david-mint ~/scripts $ ./hello.sh David Haywar
Hello David Hayward
david@david-mint ~/scripts $ ./hello.sh Linux Mint
Hello Linux Mint
david@david-mint ~/scripts $
```

STEP 6 Create a new script called `addition.sh`, using the same format as the hello.sh script, but changing the variable names. Here we've added `firstnumber` and `secondnumber`, and used the echo command to output some simple arithmetic by placing an integer expression, `echo The sum is $(($firstnumber+$secondnumber))`. Save the script, and make it executable (`chmod +x addition.sh`).


addition.sh
File Edit View Search Tools Documents Help
addition.sh

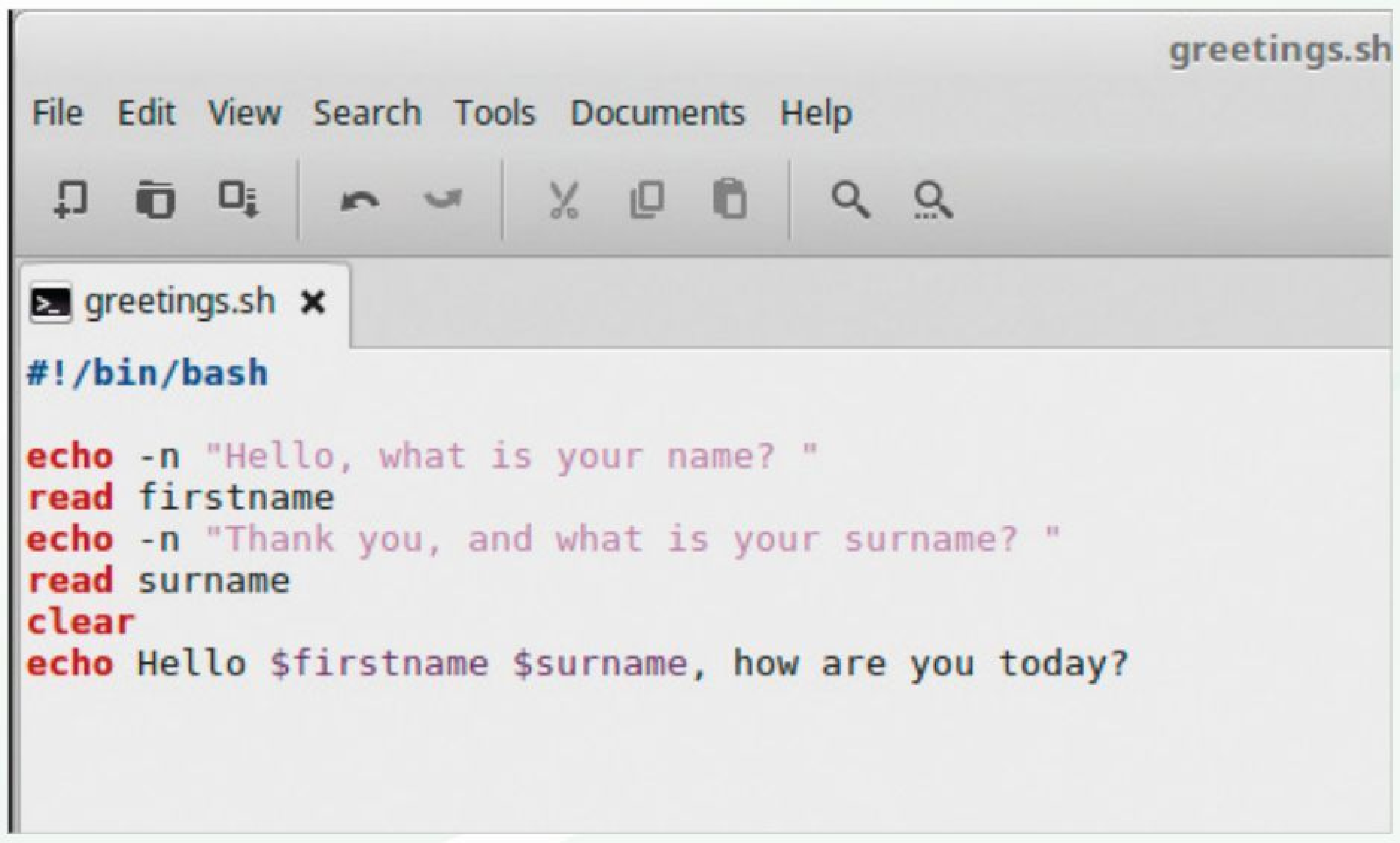
```
#!/bin/bash
firstnumber=$1
secondnumber=$2
echo The sum is $(($firstnumber+$secondnumber))
```

STEP 7 When you now run the addition.sh script we can enter two numbers: `./addition.sh 1 2`. The result will hopefully be 3, with the Terminal displaying 'The sum is 3'. Try it with a few different numbers and see what happens. See also if you can alter the script and rename it do multiplication, and subtraction.


File Edit View Search Terminal Help

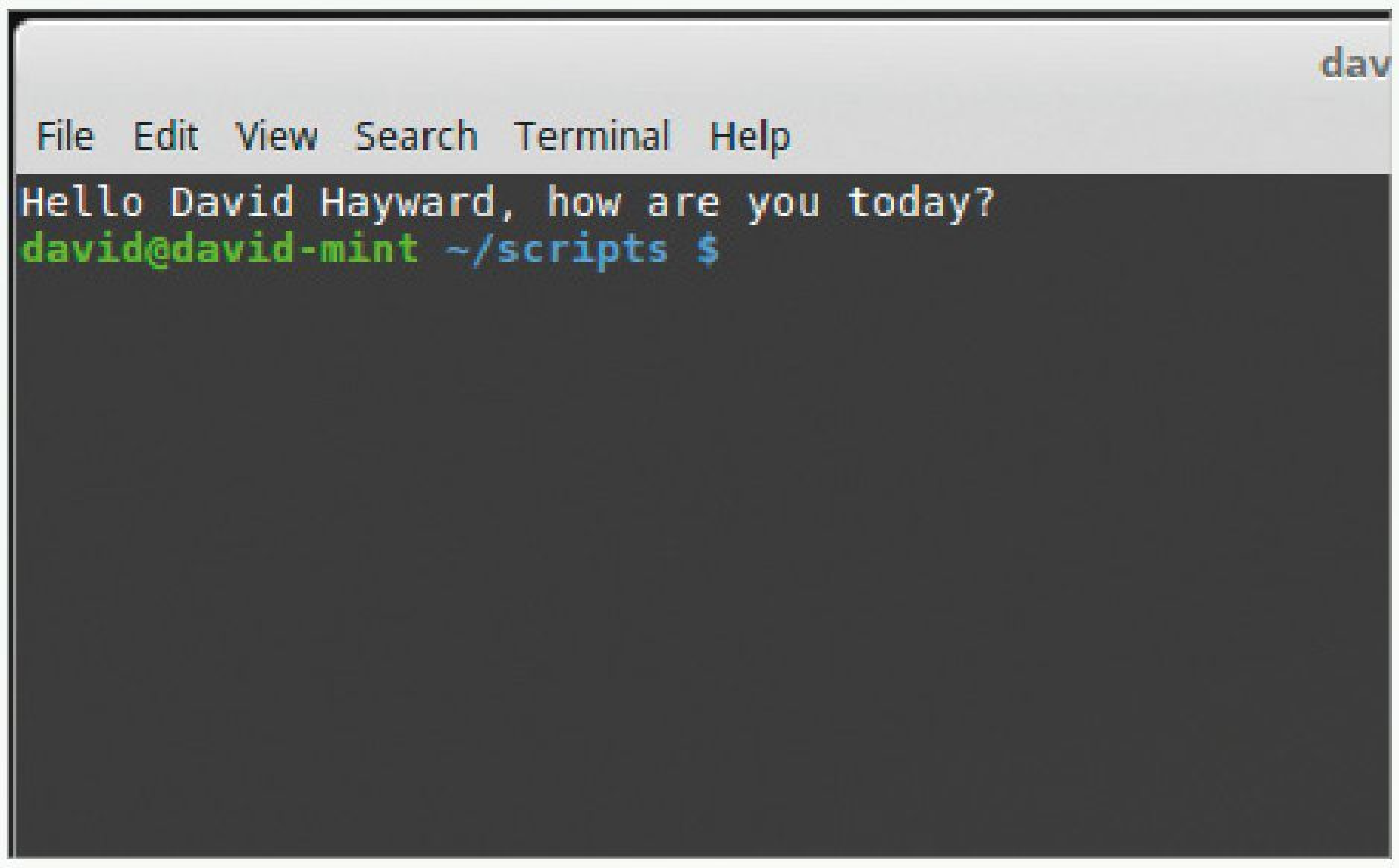
```
david@david-mint ~/scripts $ ./addition.sh 1 2
The sum is 3
david@david-mint ~/scripts $ ./addition.sh 34 45
The sum is 79
david@david-mint ~/scripts $ ./addition.sh 65756 1456
The sum is 67212
david@david-mint ~/scripts $ ./multiplication.sh 2 8
The sum is 16
david@david-mint ~/scripts $
```

STEP 8 Let's expand things further. Create a new script called `greetings.sh`. Enter the scripting as below in the screenshot, save it and make it executable with the `chmod` command. You can see that there are a few new additions to the script now.


greetings.sh
File Edit View Search Tools Documents Help
greetings.sh

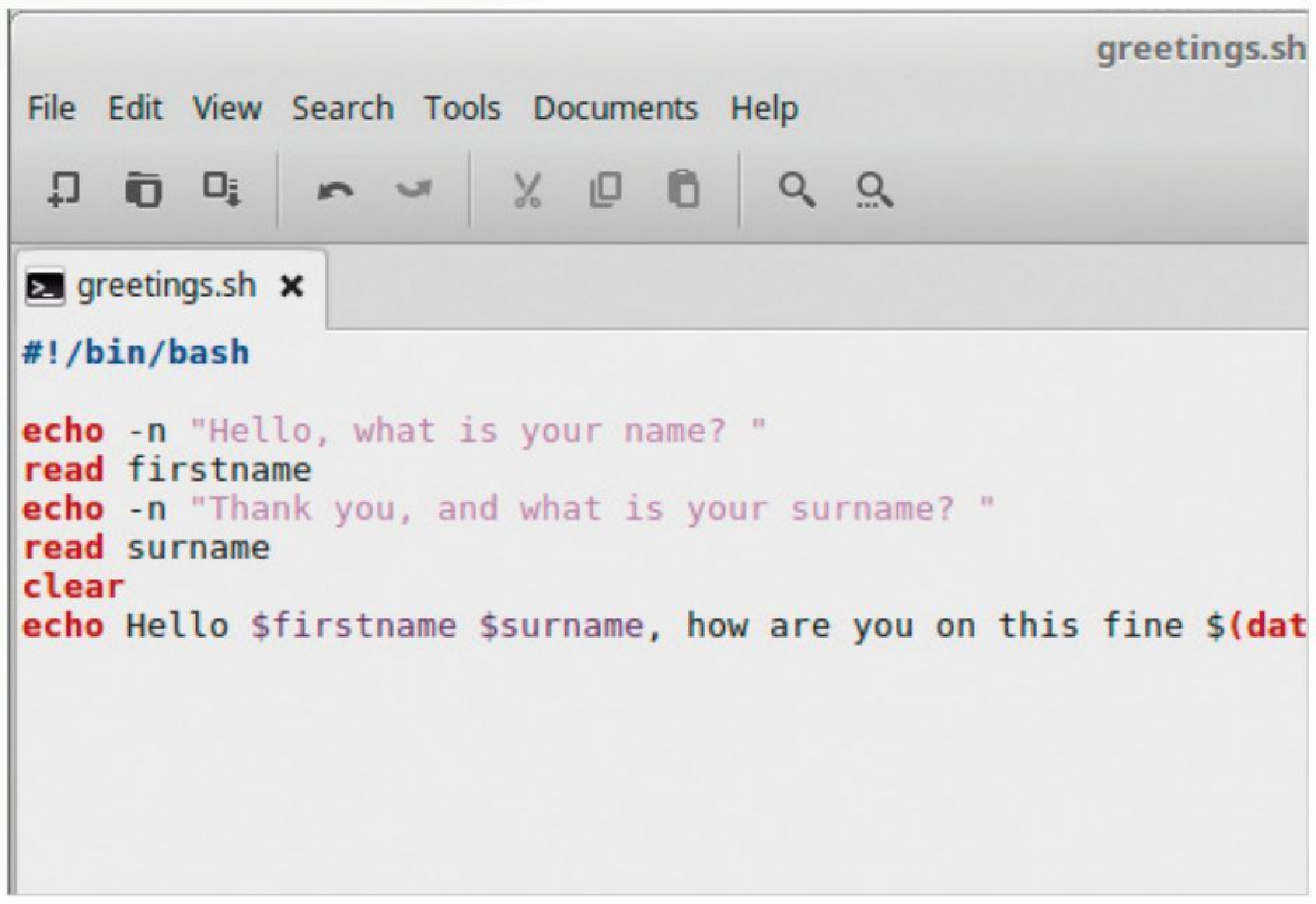
```
#!/bin/bash

echo -n "Hello, what is your name? "
read firstname
echo -n "Thank you, and what is your surname? "
read surname
clear
echo Hello $firstname $surname, how are you today?
```

STEP 9 We've added a `–n` to the echo command here which will leave the cursor on the same line as the question, instead of a new line. The `read` command stores the users' input as the variables firstname and surname, to then read back later in the last `echo` line. And the `clear` command clears the screen.


File Edit View Search Terminal Help

```
Hello David Hayward, how are you today?
david@david-mint ~/scripts $
```

STEP 10 As a final addition, let's include the date variable we used in the last section. Amend the last line of the script to read: `echo Hello $firstname $surname, how are you on this fine $(date +%A)?`. The output should display the current day of the week, calling it from a system variable.


greetings.sh
File Edit View Search Tools Documents Help
greetings.sh

```
#!/bin/bash

echo -n "Hello, what is your name? "
read firstname
echo -n "Thank you, and what is your surname? "
read surname
clear
echo Hello $firstname $surname, how are you on this fine $(dat
```

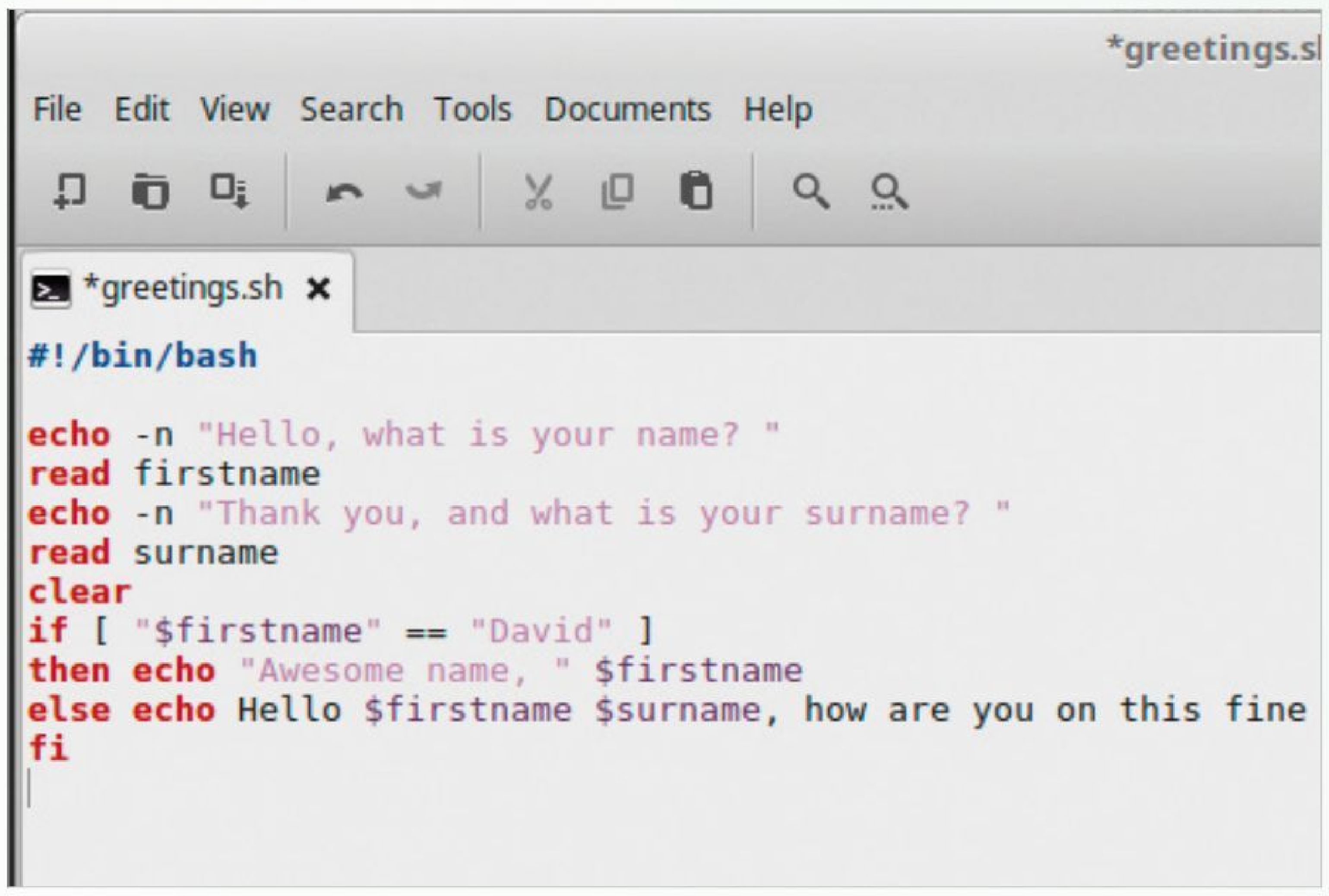
Creating Bash Scripts – Part 3

In the previous pages we looked at some very basic Bash scripting, which involved outputting text to the screen, getting a user's input, storing it and outputting that to the screen, as well as including a system variable (which was the current day) using the Date command.

IF, THEN, ELSE

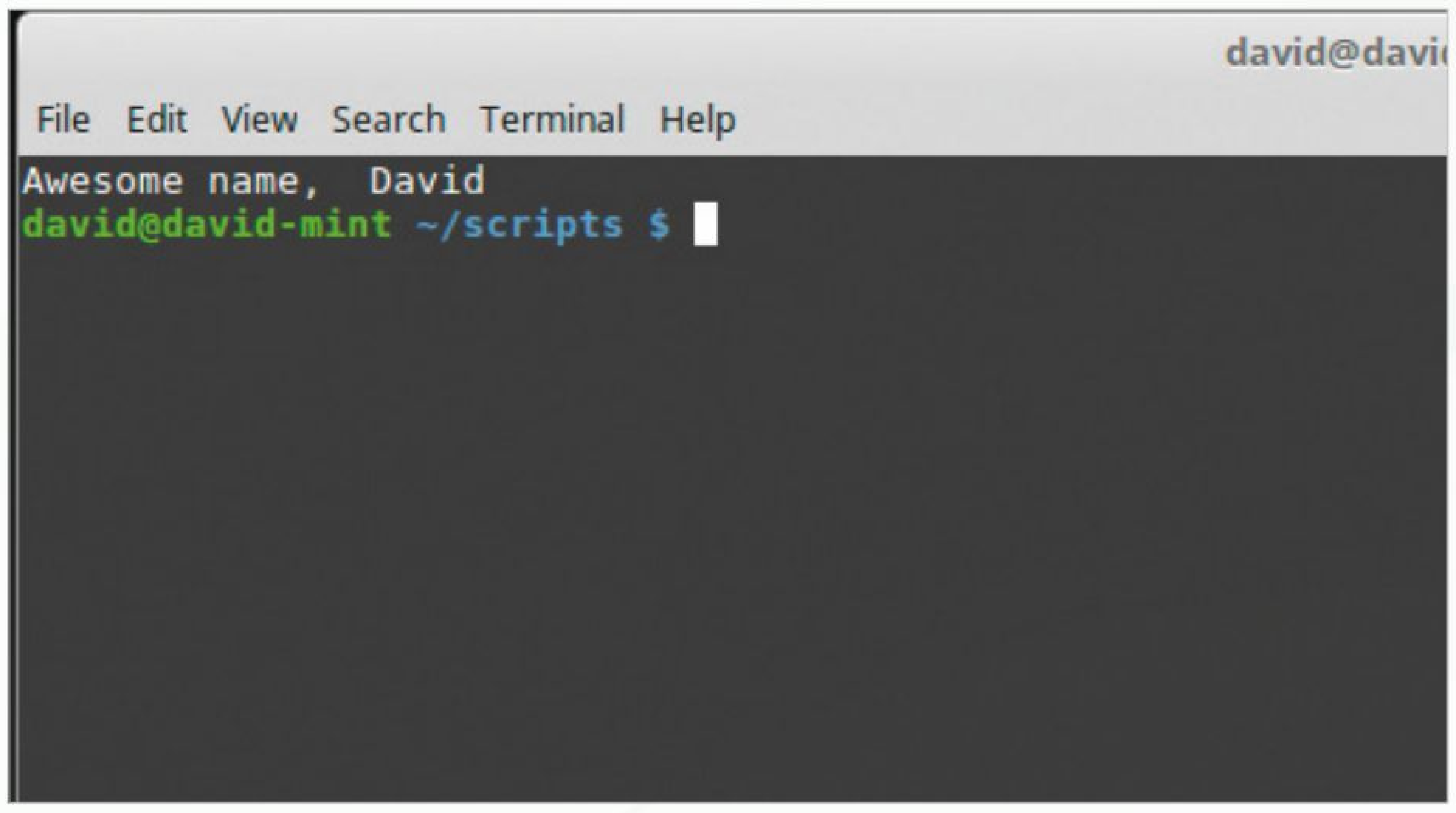
With most programming structures there will come a time where you need to loop through the commands you've entered to create better functionality, and ultimately a better program.

STEP 1 Let's look at the If, Then and Else statements now, which when executed correctly, compare a set of instructions and simply work out that IF something is present, THEN do something, ELSE do something different. Create a new script called `greeting2.sh` and enter the text in the screenshot below into it.



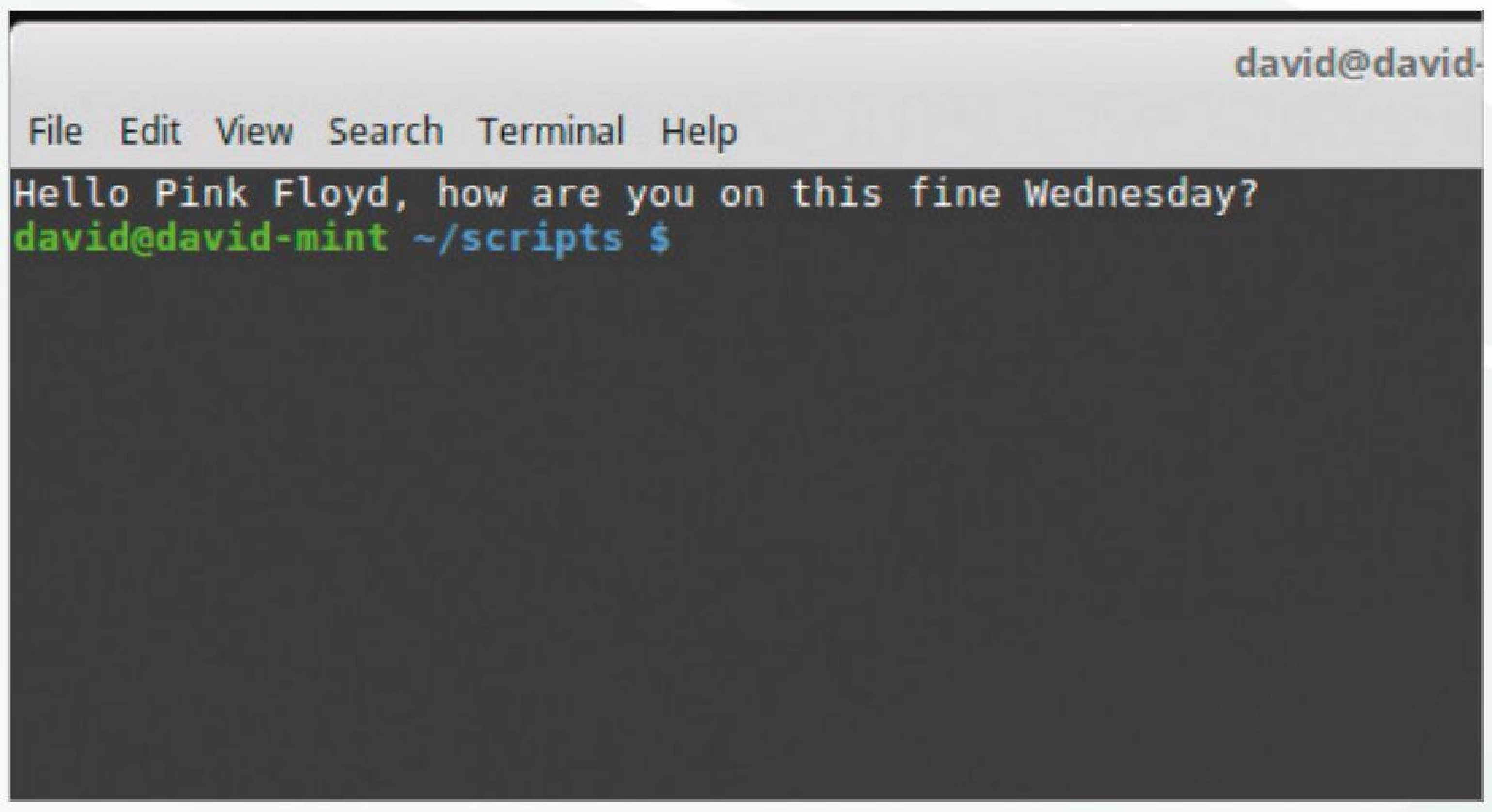
```
#!/bin/bash

echo -n "Hello, what is your name? "
read firstname
echo -n "Thank you, and what is your surname? "
read surname
clear
if [ "$firstname" == "David" ]
then echo "Awesome name, " $firstname
else echo Hello $firstname $surname, how are you on this fine
fi
```

STEP 2 Greeting2.sh is a copy of greeting.sh but with a slight difference. Here we've added a loop starting at the `if` statement. This means, IF the variable entered is equal to David the next line, THEN, is the reaction to what happens, in this case it will output to the screen 'Awesome name,' followed by the variable (which is David).



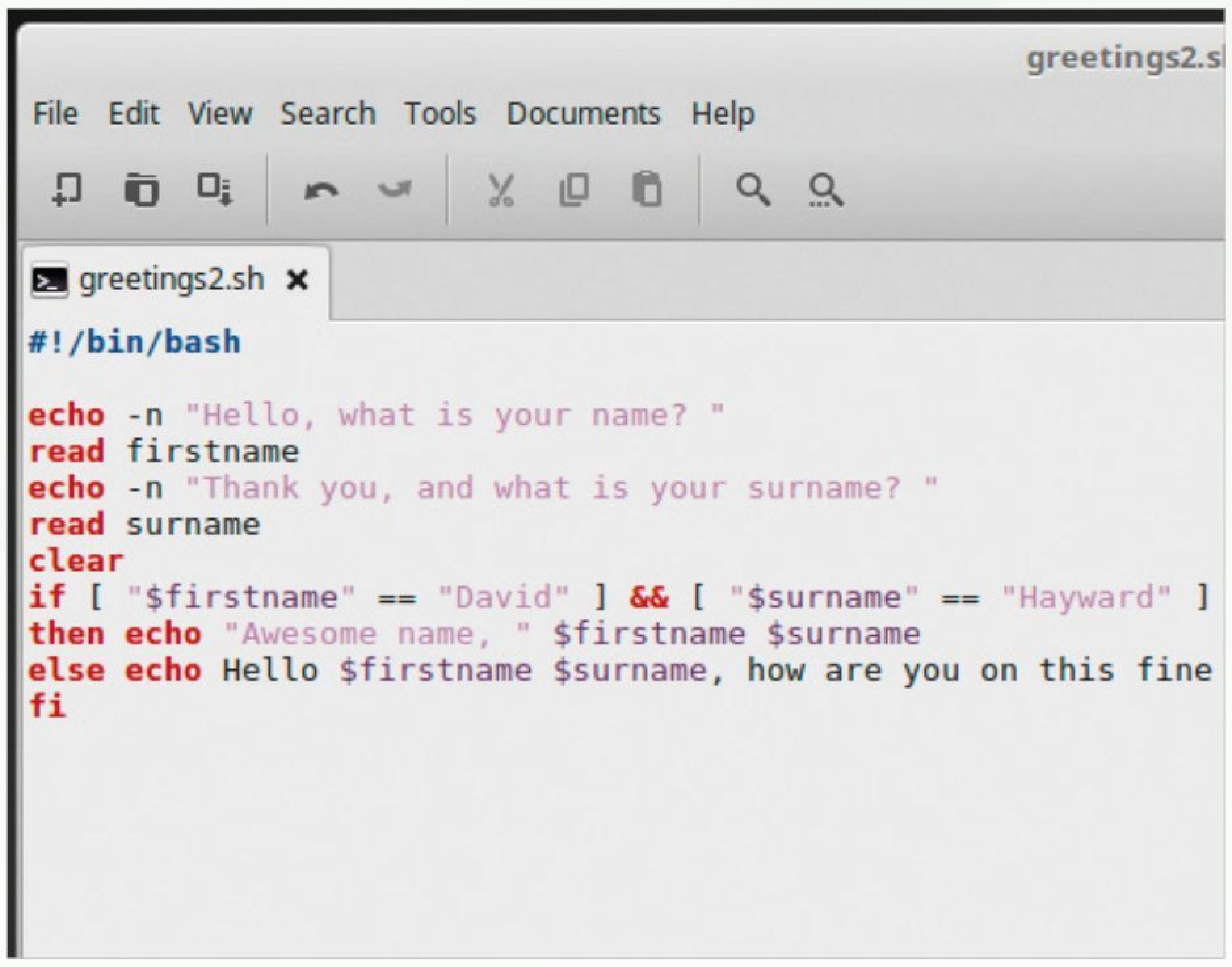
```
Awesome name,  David
david@david-mint ~/scripts $
```

STEP 3 The next line, ELSE, is what happens if the variable doesn't equal 'David'. In this case it simply outputs to the screen the now familiar 'Hello…'. The last line, the FI statement, is the command that will end the loop. If you have an If command without a Fi command, then you get an error.



```
Hello Pink Floyd, how are you on this fine Wednesday?
david@david-mint ~/scripts $
```

STEP 4 You can obviously play around with the script a little, changing the name variable that triggers a response; or maybe even issuing a response where the first name and surname variables match a specific variable.

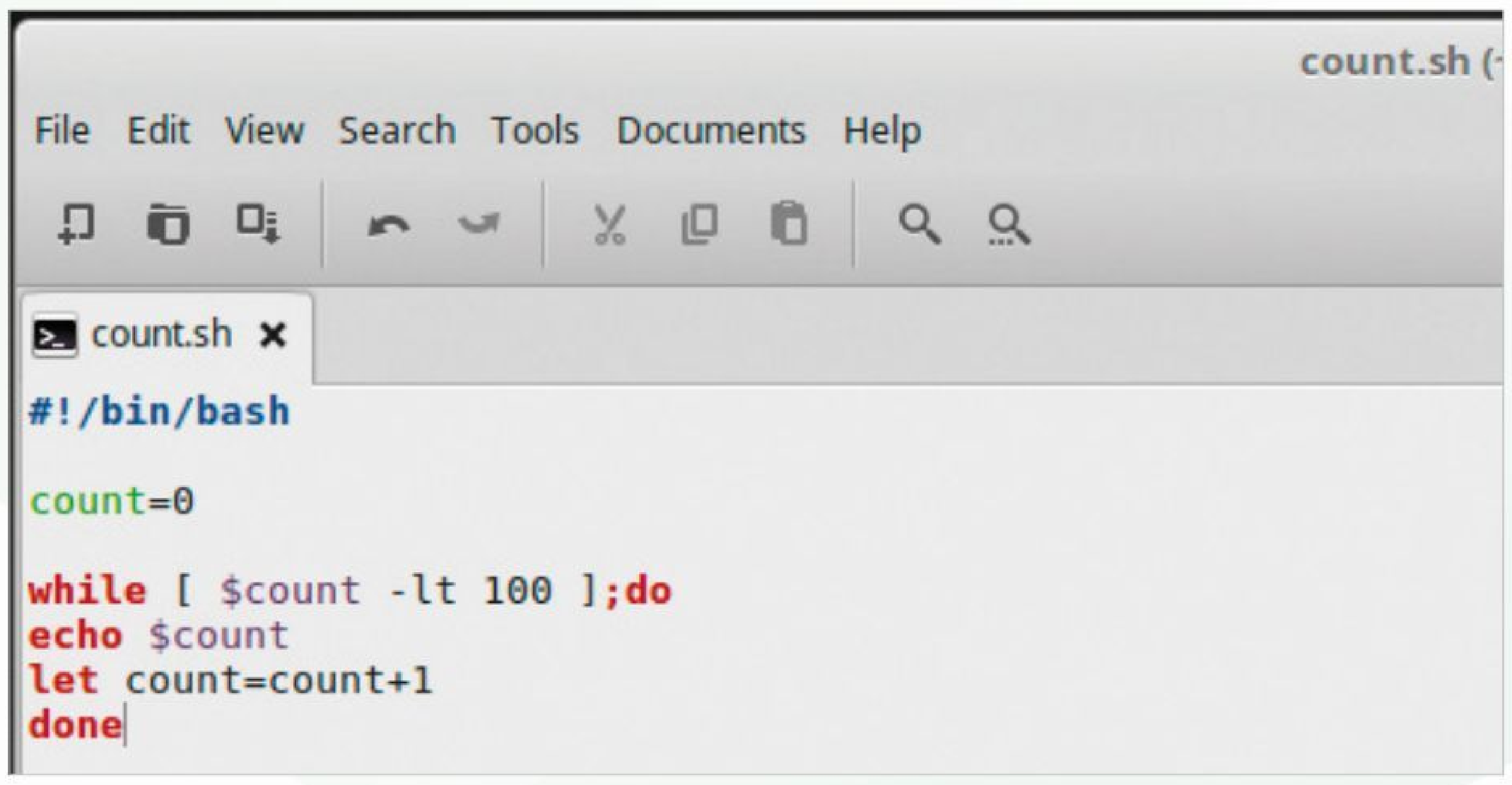


```
#!/bin/bash

echo -n "Hello, what is your name? "
read firstname
echo -n "Thank you, and what is your surname? "
read surname
clear
if [ "$firstname" == "David" ] && [ "$surname" == "Hayward" ]
then echo "Awesome name, " $firstname $surname
else echo Hello $firstname $surname, how are you on this fine
fi
```

MORE LOOPING

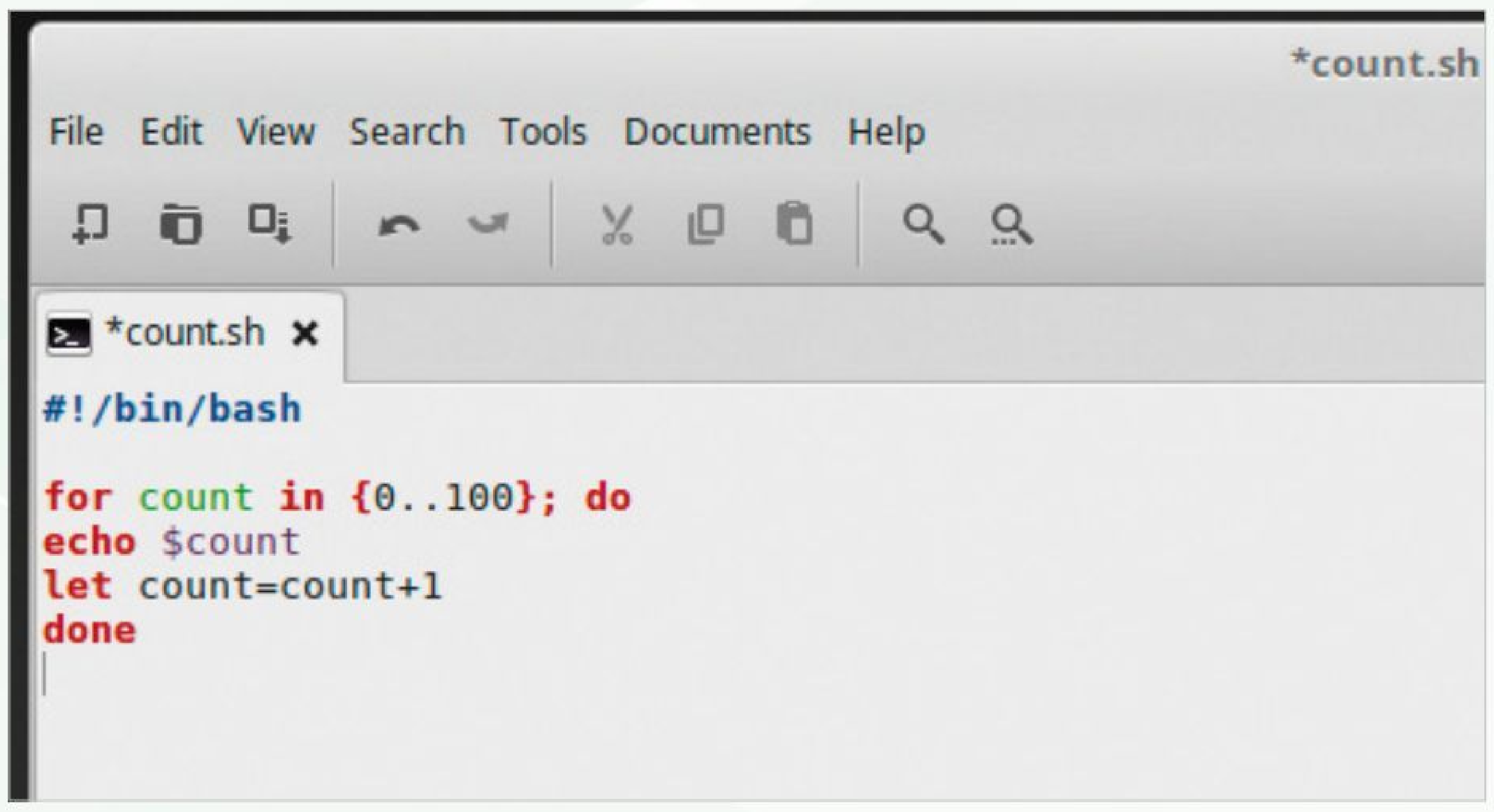
You can loop over data using the FOR, WHILE and UNTIL statements. These can be handy if you're batch naming, copying or running a script where a counter is needed.

STEP 1 Create a new script called `count.sh`. Enter the text in the screenshot below, save it and make it executable. This creates the variable 'count' which at the beginning of the script equals zero. Then start the WHILE loop, which WHILE count is less than (the LT part) 100 will print the current value of count in the echo command.


count.sh (
File Edit View Search Tools Documents Help
count.sh

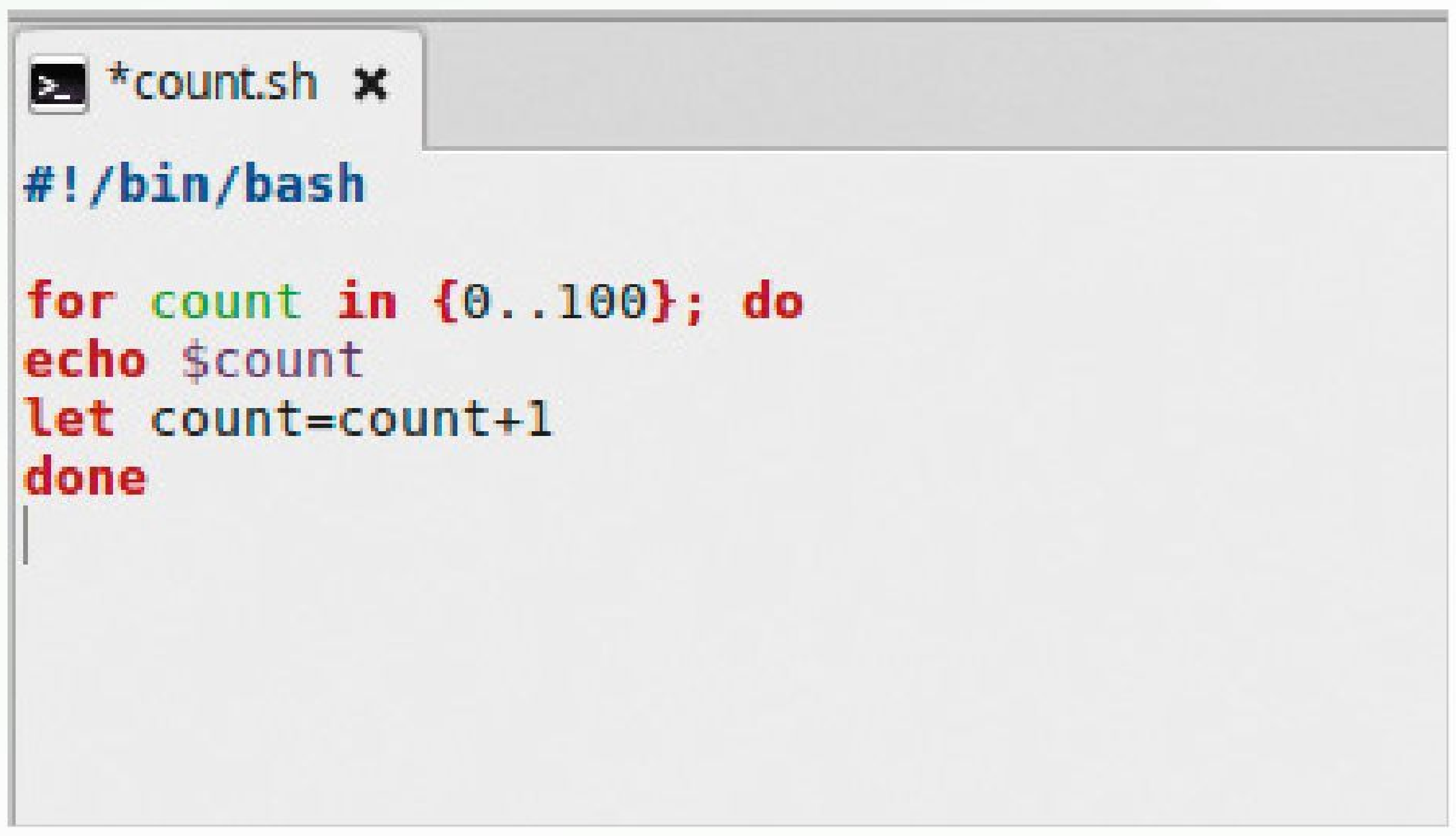
```
#!/bin/bash

count=0

while [ $count -lt 100 ];do
echo $count
let count=count+1
done
```

STEP 2 Executing the count.sh script will result in the numbers 0 to 99 listing down the Terminal screen; when it reaches 100 the script will end. Modifying the script with the FOR statement, makes it work in much the same way. To use it in our script, enter the text from the screenshot into the count.sh script.


*count.sh
File Edit View Search Tools Documents Help
*count.sh

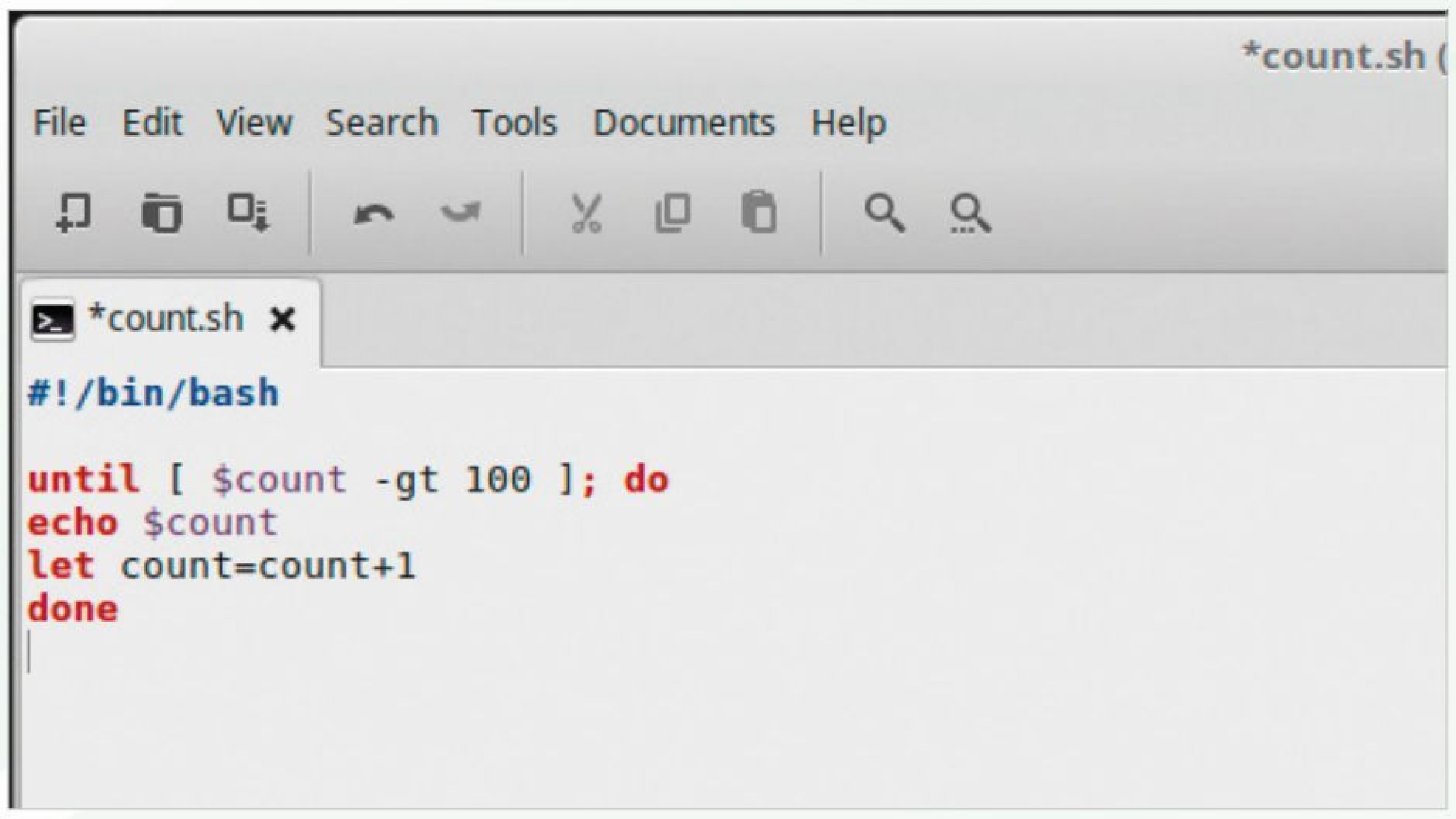
```
#!/bin/bash

for count in {0..100}; do
echo $count
let count=count+1
done
```

STEP 3 The addition we have here is: `for count in {0..100}; do`. Which means: FOR the variable 'count' IN the numbers from zero to one hundred, then start the loop. The rest of the script is the same. Run this script, and the same output should appear in the Terminal.



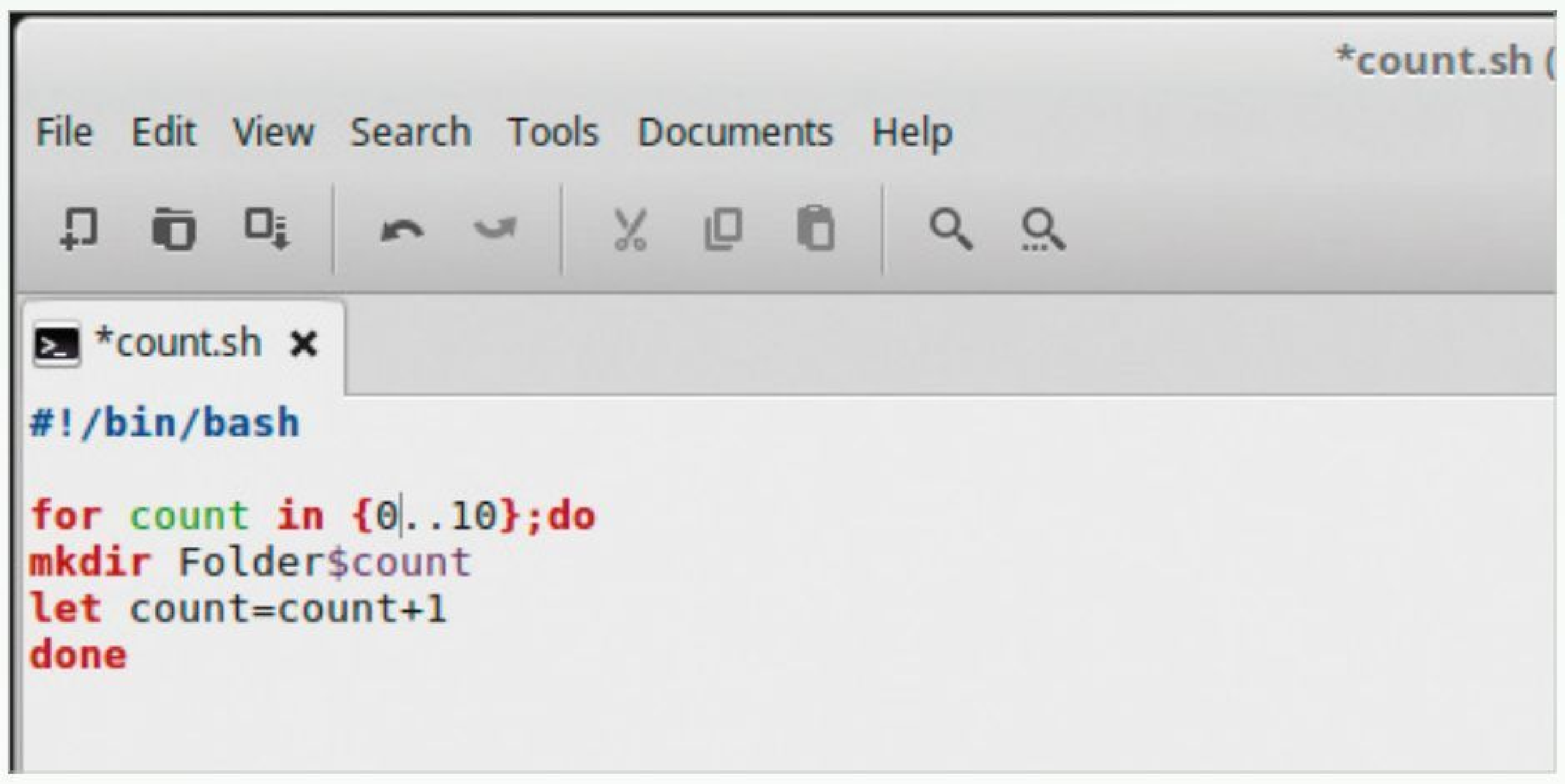
```
#!/bin/bash

for count in {0..100}; do
echo $count
let count=count+1
done
```

STEP 4 The UNTIL loop works much the same way as the WHILE loop only, more often than not, in reverse. So our counting to a hundred, using `UNTIL, would be: until [ $count -gt 100 ]; do`. The difference being, UNTIL count is greater than (the gt part) one hundred, keep on looping.


*count.sh (
File Edit View Search Tools Documents Help
*count.sh

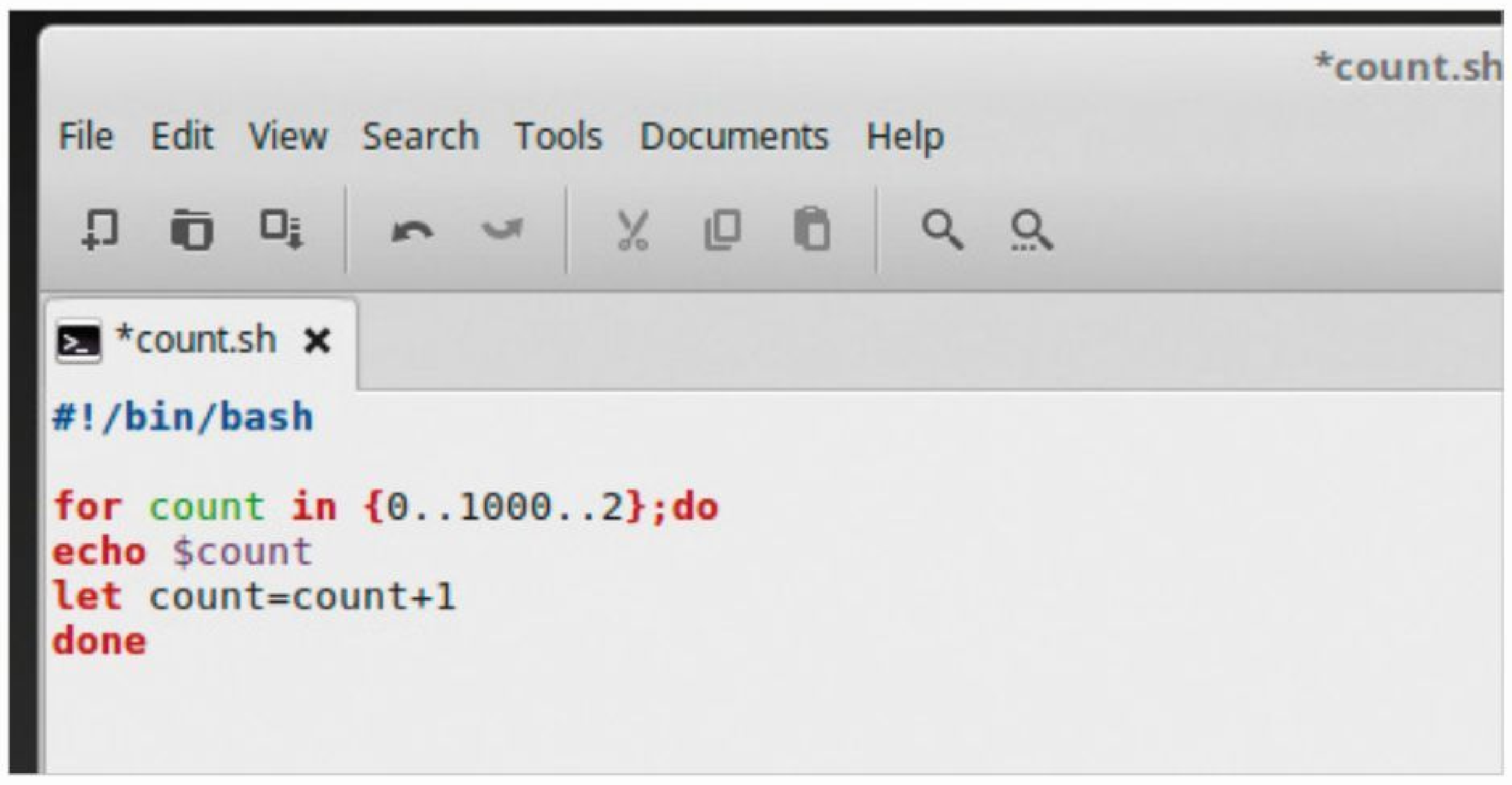
```
#!/bin/bash

until [ $count -gt 100 ]; do
echo $count
let count=count+1
done
```

STEP 5 You're not limited to numbers zero to one hundred. You can, within the loop, have whatever set of commands you like and execute them as many times as you want the loop to run for. Renaming a million files, creating fifty folders etc. For example, this script will create ten folders named folder1 through to folder10 using the FOR loop.


*count.sh (
File Edit View Search Tools Documents Help
*count.sh

```
#!/bin/bash

for count in {0..10};do
mkdir Folder$count
let count=count+1
done
```

STEP 6 Using the FOR statement once more, we can execute the counting sequence by manipulating the {0..100} part. This section of the code actually means {START..END..INCREMENT}, if there's no increment then it's just a single digit up to the END. For example, we could get the loops to count up to 1000 in two's with: `for count in {0..1000..2}; do`.


*count.sh
File Edit View Search Tools Documents Help
*count.sh

```
#!/bin/bash

for count in {0..1000..2};do
echo $count
let count=count+1
done
```

Creating Bash Scripts – Part 4

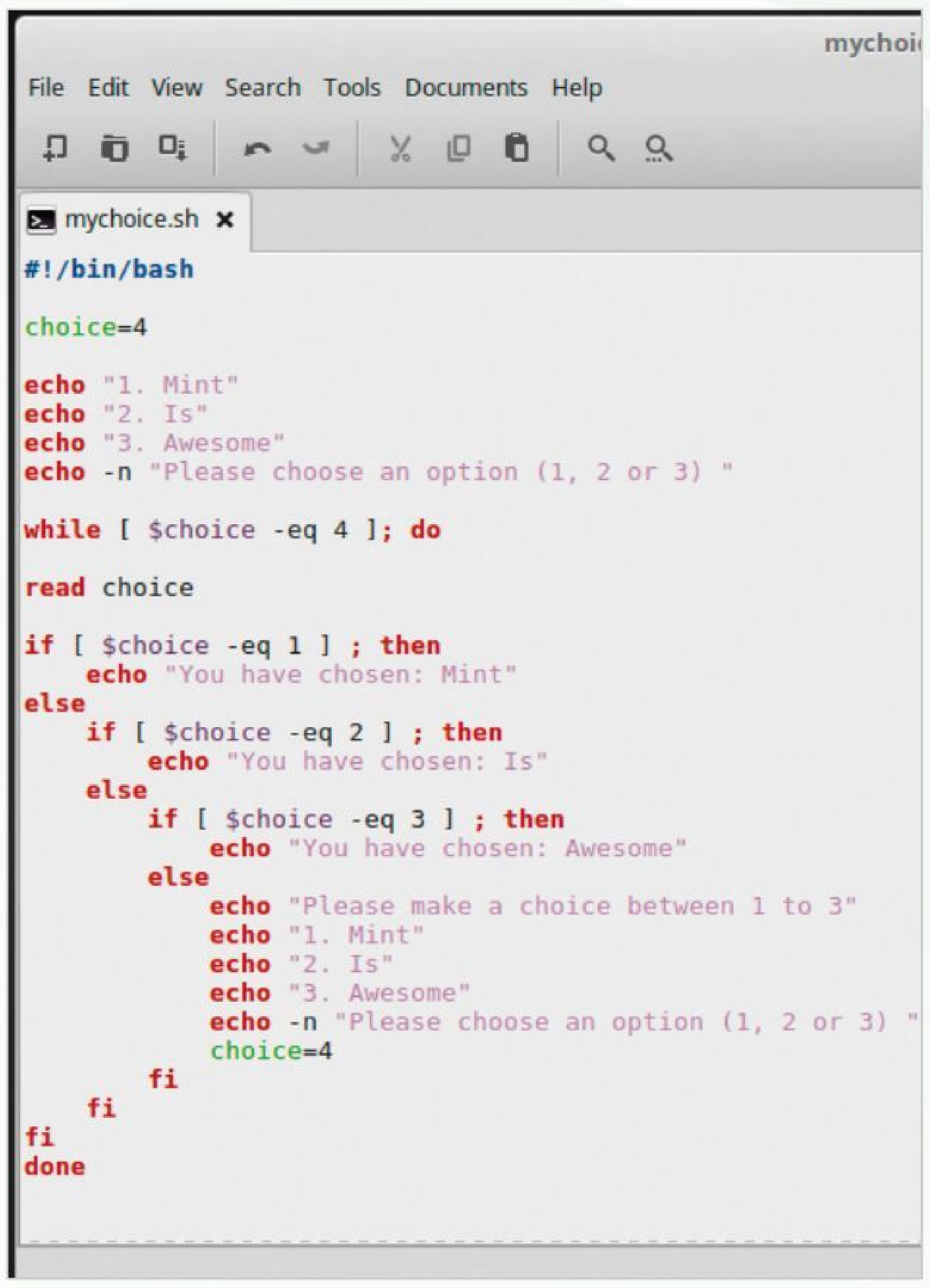
You've encountered user interaction with your scripts, asking what the user's name is and so on. You've also looked at creating loops within the script to either count or simply do something several times. Let's combine and expand some more.

CHOICES AND LOOPS

Let's bring in another command, CHOICE, along with some nested IF and ELSE statements. Start by creating a new script called `mychoice.sh`.

STEP 1

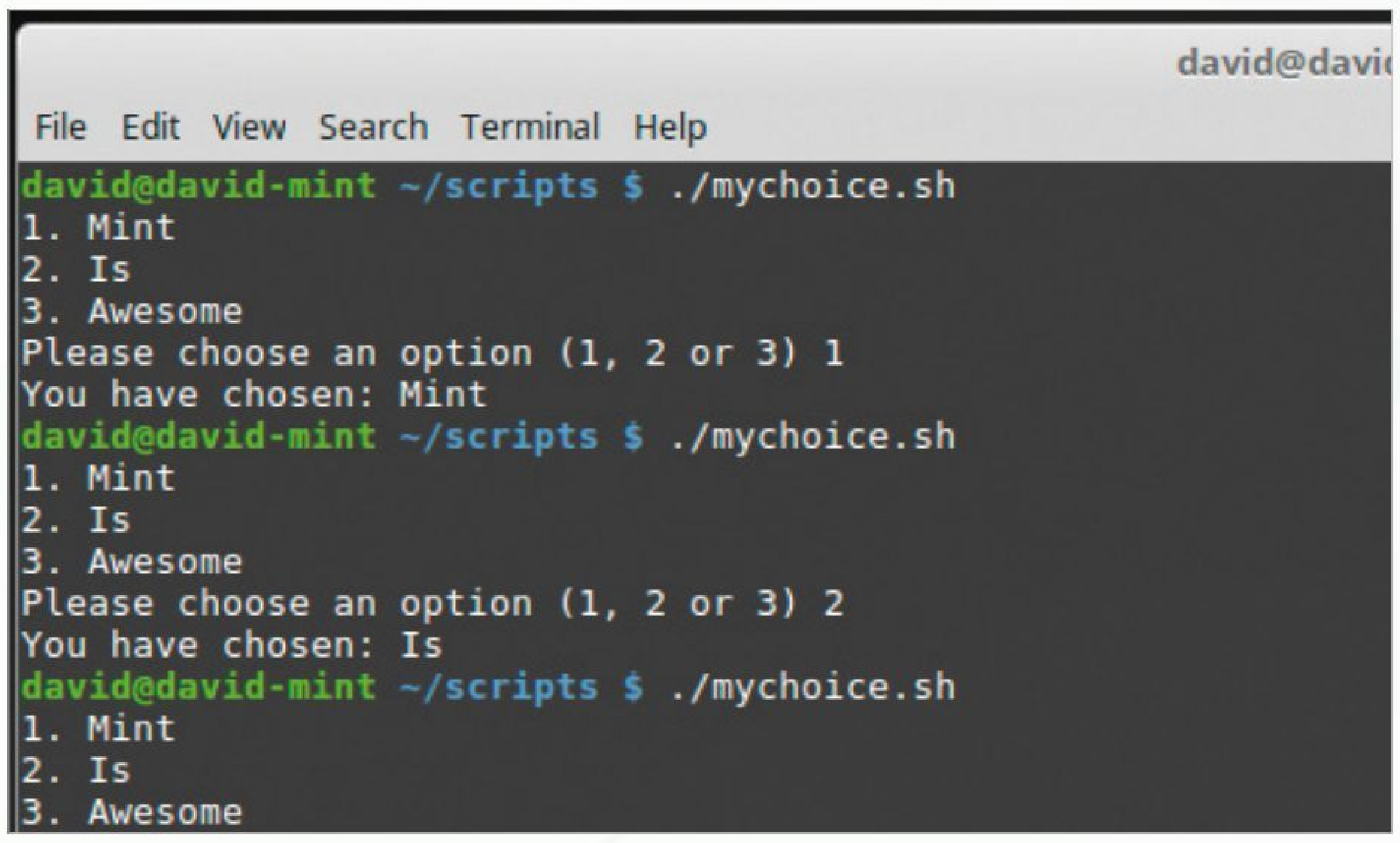
The mychoice.sh script is beginning to look a lot more complex. What we have here is a list of four choices, with three possible options. The options: Mint, Is, and Awesome will be displayed if the user presses the correct option key. If not, then the menu will reappear, the fourth choice.



```
#!/bin/bash

choice=4

echo "1. Mint"
echo "2. Is"
echo "3. Awesome"
echo -n "Please choose an option (1, 2 or 3) "

while [ $choice -eq 4 ]; do

read choice

if [ $choice -eq 1 ] ; then
    echo "You have chosen: Mint"
else
    if [ $choice -eq 2 ] ; then
        echo "You have chosen: Is"
    else
        if [ $choice -eq 3 ] ; then
            echo "You have chosen: Awesome"
        else
            echo "Please make a choice between 1 to 3"
            echo "1. Mint"
            echo "2. Is"
            echo "3. Awesome"
            echo -n "Please choose an option (1, 2 or 3) "
            choice=4
        fi
    fi
fi
done
```

STEP 2

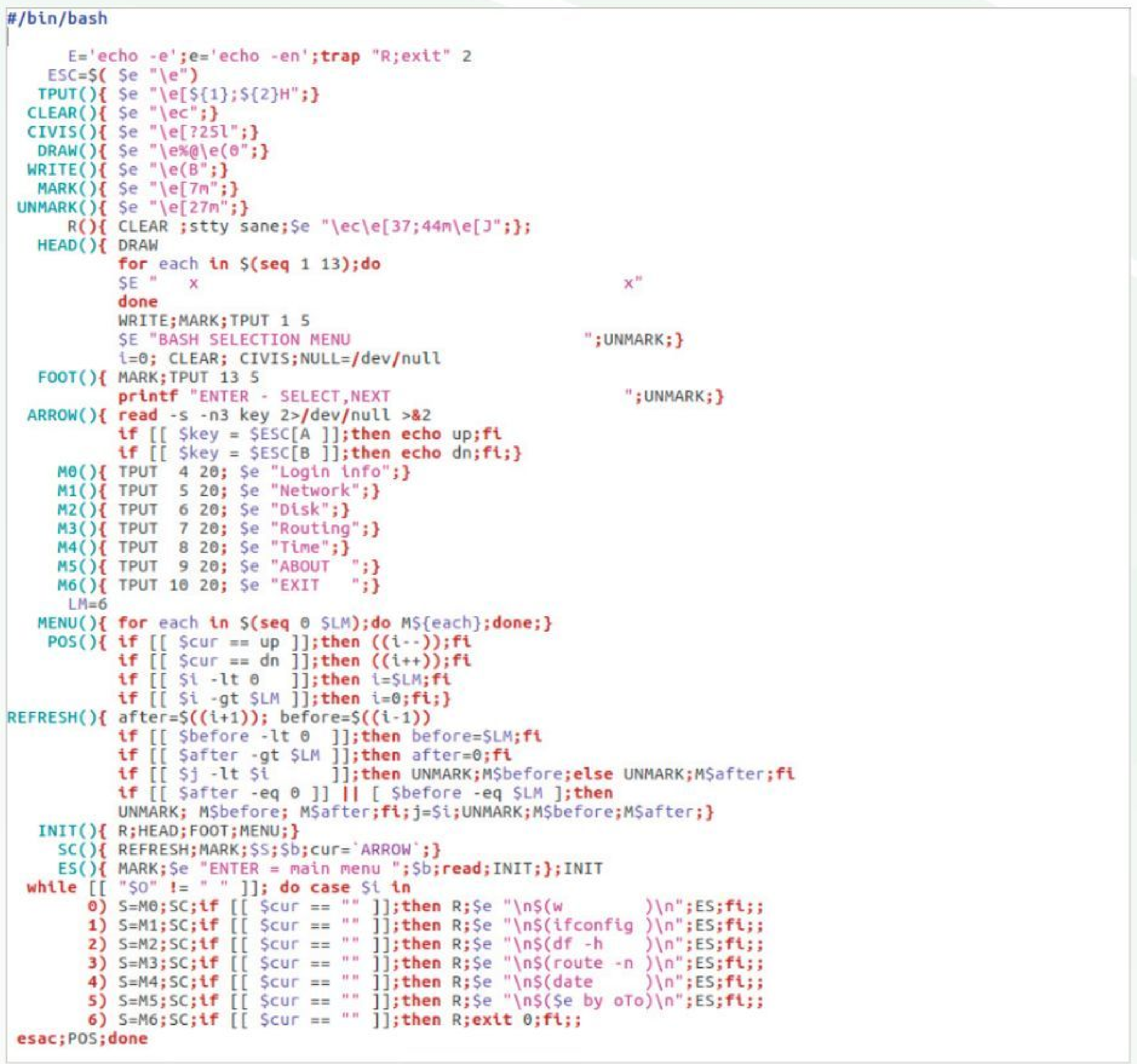
If you follow the script through you soon get the hang of what's going on, based on what we've already covered. WHILE, IF, and ELSE, with the FI closing loop statement will run through the options and bring you back to the start if you pick the wrong option.



```
david@david-mint ~/scripts $ ./mychoice.sh
1. Mint
2. Is
3. Awesome
Please choose an option (1, 2 or 3) 1
You have chosen: Mint
david@david-mint ~/scripts $ ./mychoice.sh
1. Mint
2. Is
3. Awesome
Please choose an option (1, 2 or 3) 2
You have chosen: Is
david@david-mint ~/scripts $ ./mychoice.sh
1. Mint
2. Is
3. Awesome
```

STEP 3

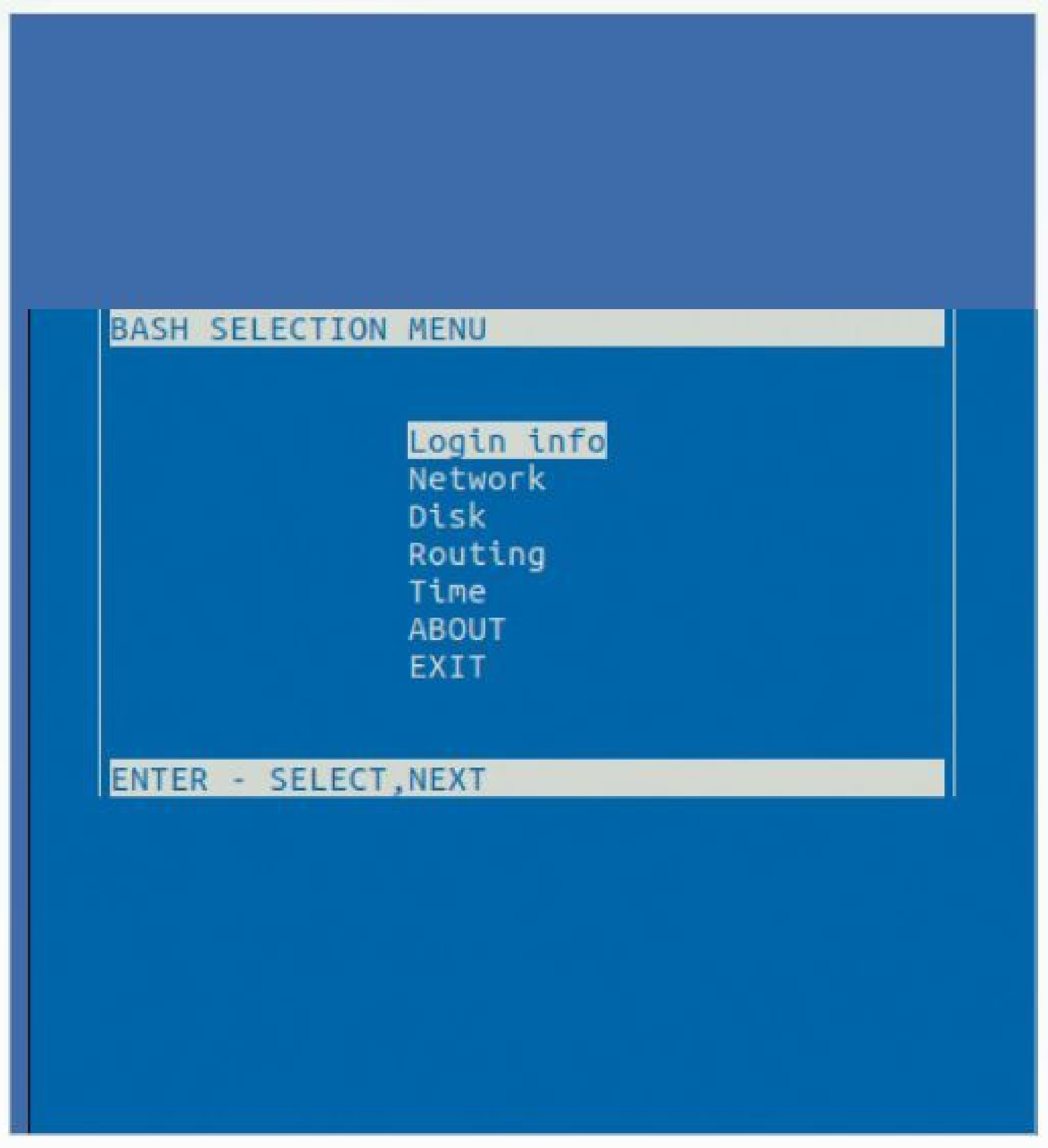
You can, of course, increase the number of choices but you need to make sure that you match the number of choices to the number of IF statements. The script can quickly become a very busy screen to look at. This lengthy script is another way of displaying a menu, this time with a fancy colour scheme too.



```
#/bin/bash

      E='echo -e';e='echo -en';trap "R;exit" 2
    ESC=$( $e "\e")
   TPUT(){ $e "\e[${1};${2}H";}
  CLEAR(){ $e "\ec";}
  CIVIS(){ $e "\e[?25l";}
   DRAW(){ $e "\e%@\e(0";}
  WRITE(){ $e "\e(B";}
   MARK(){ $e "\e[7m";}
 UNMARK(){ $e "\e[27m";}
      R(){ CLEAR ;stty sane;$e "\ec\e[37;44m\e[J";};
   HEAD(){ DRAW
           for each in $(seq 1 13);do
           $E "   x                                          x"
           done
           WRITE;MARK;TPUT 1 5
           $E "BASH SELECTION MENU                           ";UNMARK;}
           i=0; CLEAR; CIVIS;NULL=/dev/null
   FOOT(){ MARK;TPUT 13 5
           printf "ENTER - SELECT,NEXT                           ";UNMARK;}
  ARROW(){ read -s -n3 key 2>/dev/null >&2
           if [[ $key = $ESC[A ]];then echo up;fi
           if [[ $key = $ESC[B ]];then echo dn;fi;}
     M0(){ TPUT  4 20; $e "Login info";}
     M1(){ TPUT  5 20; $e "Network";}
     M2(){ TPUT  6 20; $e "Disk";}
     M3(){ TPUT  7 20; $e "Routing";}
     M4(){ TPUT  8 20; $e "Time";}
     M5(){ TPUT  9 20; $e "ABOUT  ";}
     M6(){ TPUT 10 20; $e "EXIT   ";}
      LM=6
   MENU(){ for each in $(seq 0 $LM);do M${each};done;}
    POS(){ if [[ $cur == up ]];then ((i--));fi
           if [[ $cur == dn ]];then ((i++));fi
           if [[ $i -lt 0   ]];then i=$LM;fi
           if [[ $i -gt $LM ]];then i=0;fi;}
REFRESH(){ after=$((i+1)); before=$((i-1))
           if [[ $before -lt 0  ]];then before=$LM;fi
           if [[ $after -gt $LM ]];then after=0;fi
           if [[ $j -lt $i      ]];then UNMARK;M$before;else UNMARK;M$after;fi
           if [[ $after -eq 0 ]] || [ $before -eq $LM ];then
           UNMARK; M$before; M$after;fi;j=$i;UNMARK;M$before;M$after;}
   INIT(){ R;HEAD;FOOT;MENU;}
     SC(){ REFRESH;MARK;$S;$b;cur=`ARROW`;}
     ES(){ MARK;$e "ENTER = main menu ";$b;read;INIT;};INIT
  while [[ "$O" != " " ]]; do case $i in
        0) S=M0;SC;if [[ $cur == "" ]];then R;$e "\n$(w         )\n";ES;fi;;
        1) S=M1;SC;if [[ $cur == "" ]];then R;$e "\n$(ifconfig )\n";ES;fi;;
        2) S=M2;SC;if [[ $cur == "" ]];then R;$e "\n$(df -h     )\n";ES;fi;;
        3) S=M3;SC;if [[ $cur == "" ]];then R;$e "\n$(route -n )\n";ES;fi;;
        4) S=M4;SC;if [[ $cur == "" ]];then R;$e "\n$(date      )\n";ES;fi;;
        5) S=M5;SC;if [[ $cur == "" ]];then R;$e "\n$($e by oTo)\n";ES;fi;;
        6) S=M6;SC;if [[ $cur == "" ]];then R;exit 0;fi;;
 esac;POS;done
```

STEP 4

You can use the arrow keys and Enter in the menu setup in the script. Each choice is an external command that feeds back various information. Play around with the commands and choices, and see what you can come up with. It's a bit beyond what we've looked at but it gives a good idea of what can be achieved.



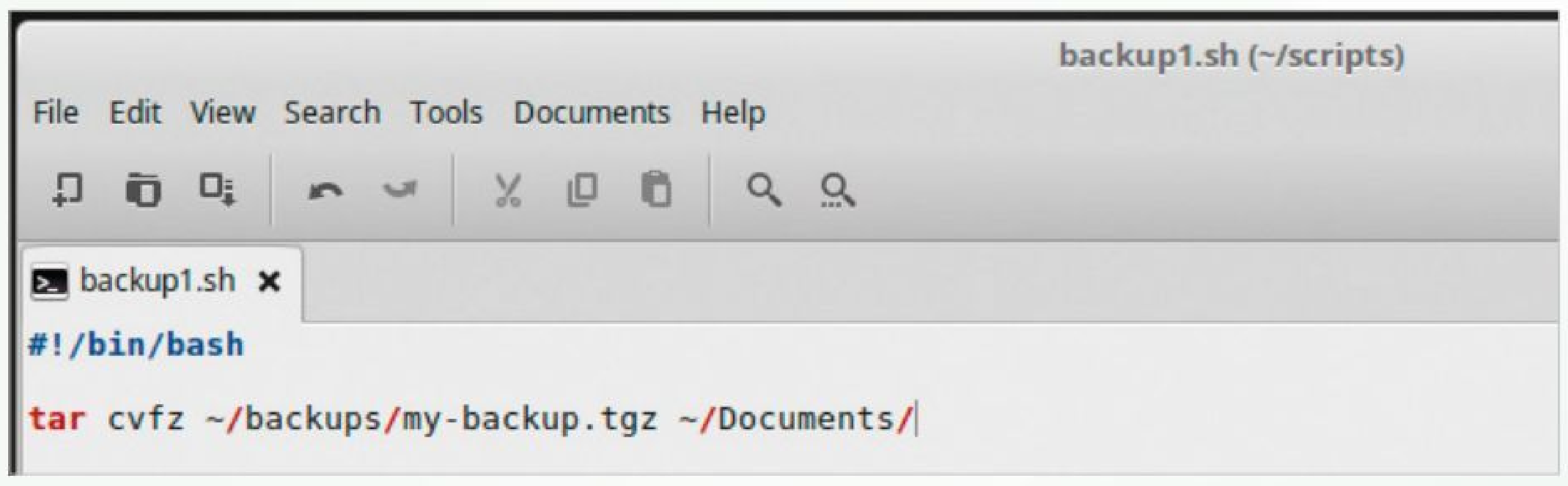
```
BASH SELECTION MENU

               Login info
               Network
               Disk
               Routing
               Time
               ABOUT
               EXIT

ENTER - SELECT,NEXT
```

CREATING A BACKUP TASK SCRIPT

One of the most well used examples of Bash scripting is the creation of a backup routine, one that automates the task as well as adding some customisations along the way.

STEP 1

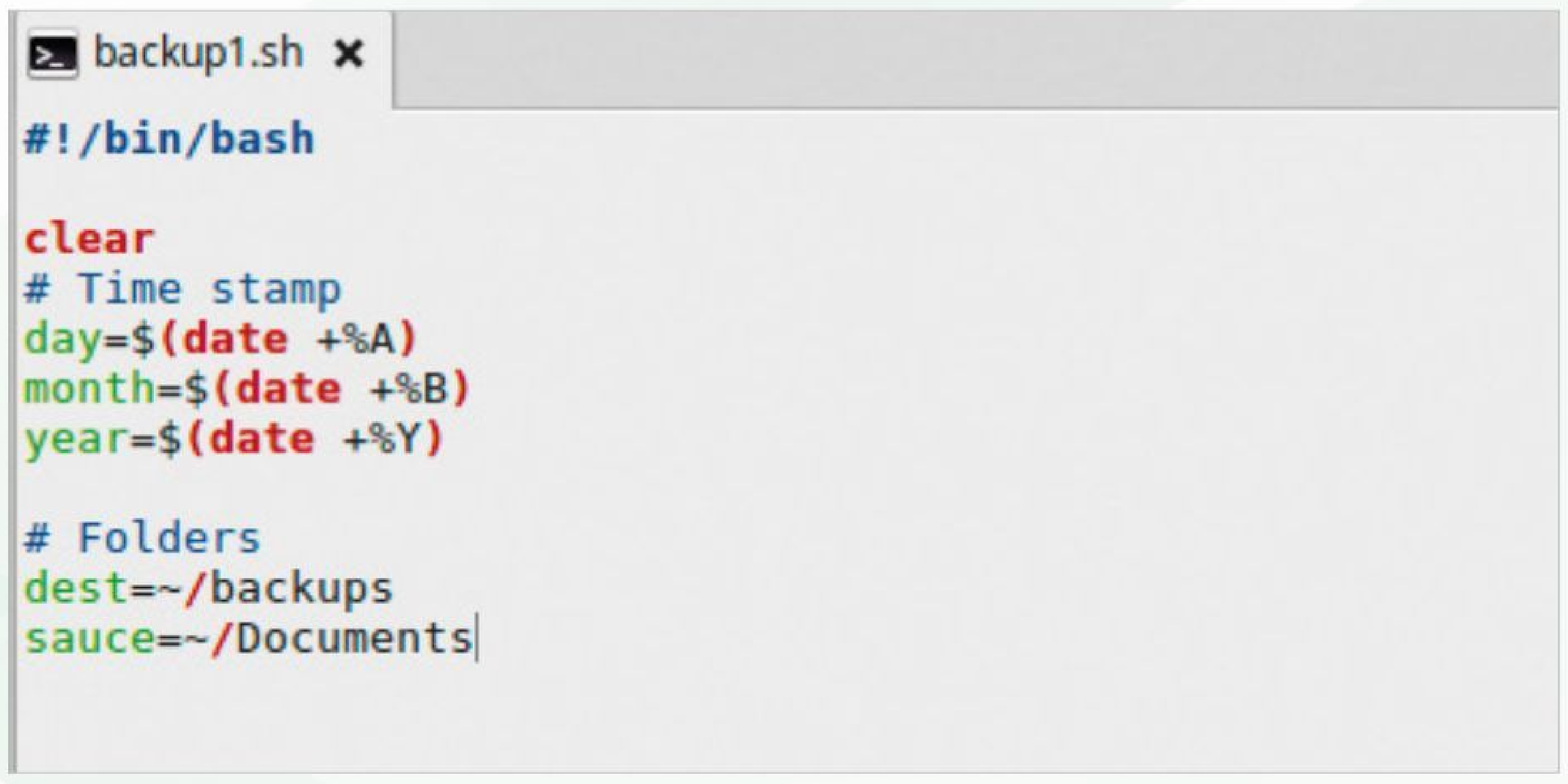
A very basic backup script would look something along the lines of: `#!/bin/bash`, then, `tar cvfz ~/backups/my-backup.tgz ~/Documents/`. This will create a compressed file backup of the ~/Documents folder, with everything in it, and put it in a folder called /backups with the name my-backup.tgz.



```
#!/bin/bash

tar cvfz ~/backups/my-backup.tgz ~/Documents/
```

STEP 2

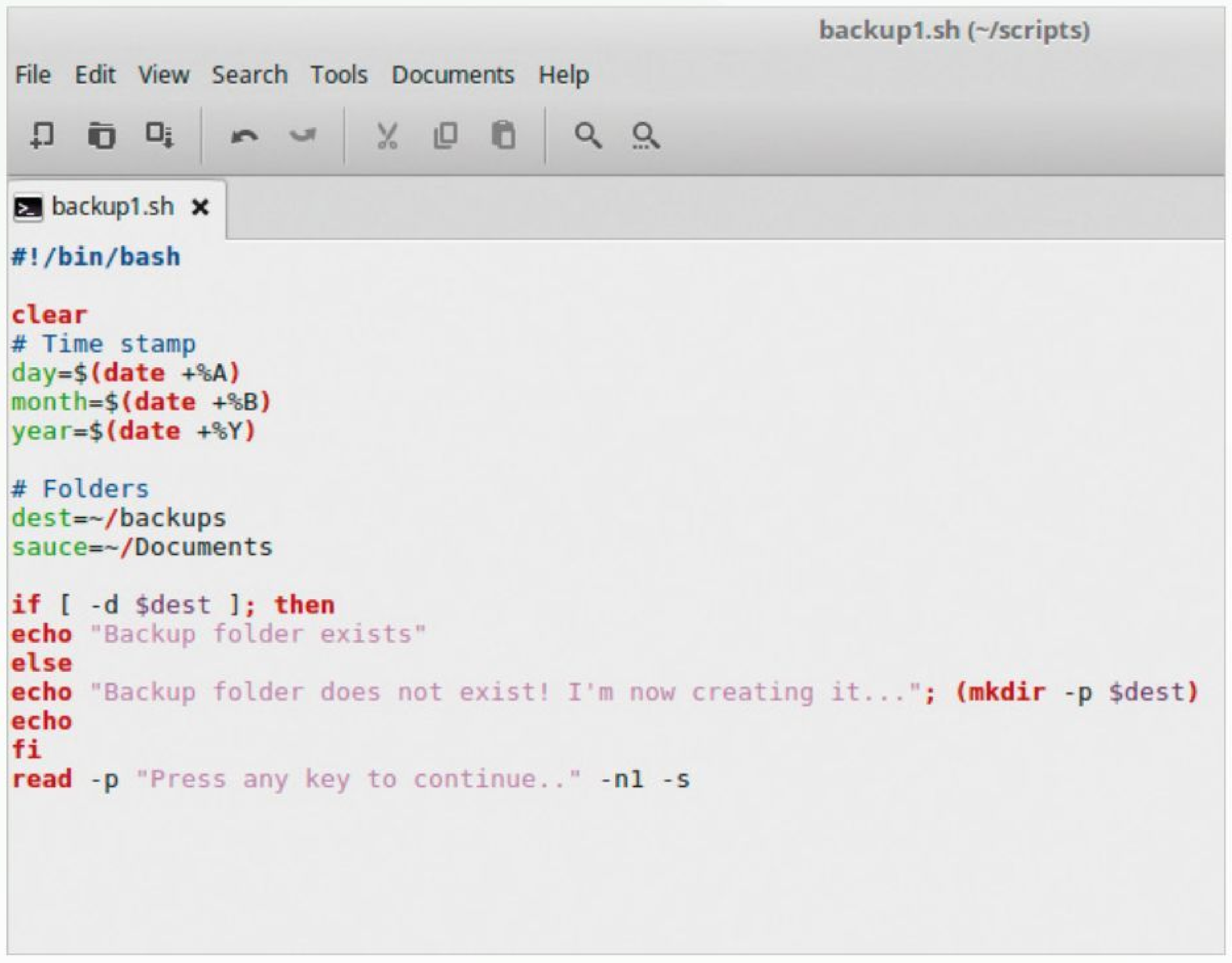
While perfectly fine, we can make the simple script a lot more interactive. Let's begin with defining some variables. Enter the text in the screenshot into a new `backup.sh` script. Notice that we've misspelt 'source' as 'sauce', this is because there's already a built-in command called 'source' hence the different spelling on our part.



```
#!/bin/bash

clear
# Time stamp
day=$(date +%A)
month=$(date +%B)
year=$(date +%Y)

# Folders
dest=~/backups
sauce=~/Documents
```

STEP 3

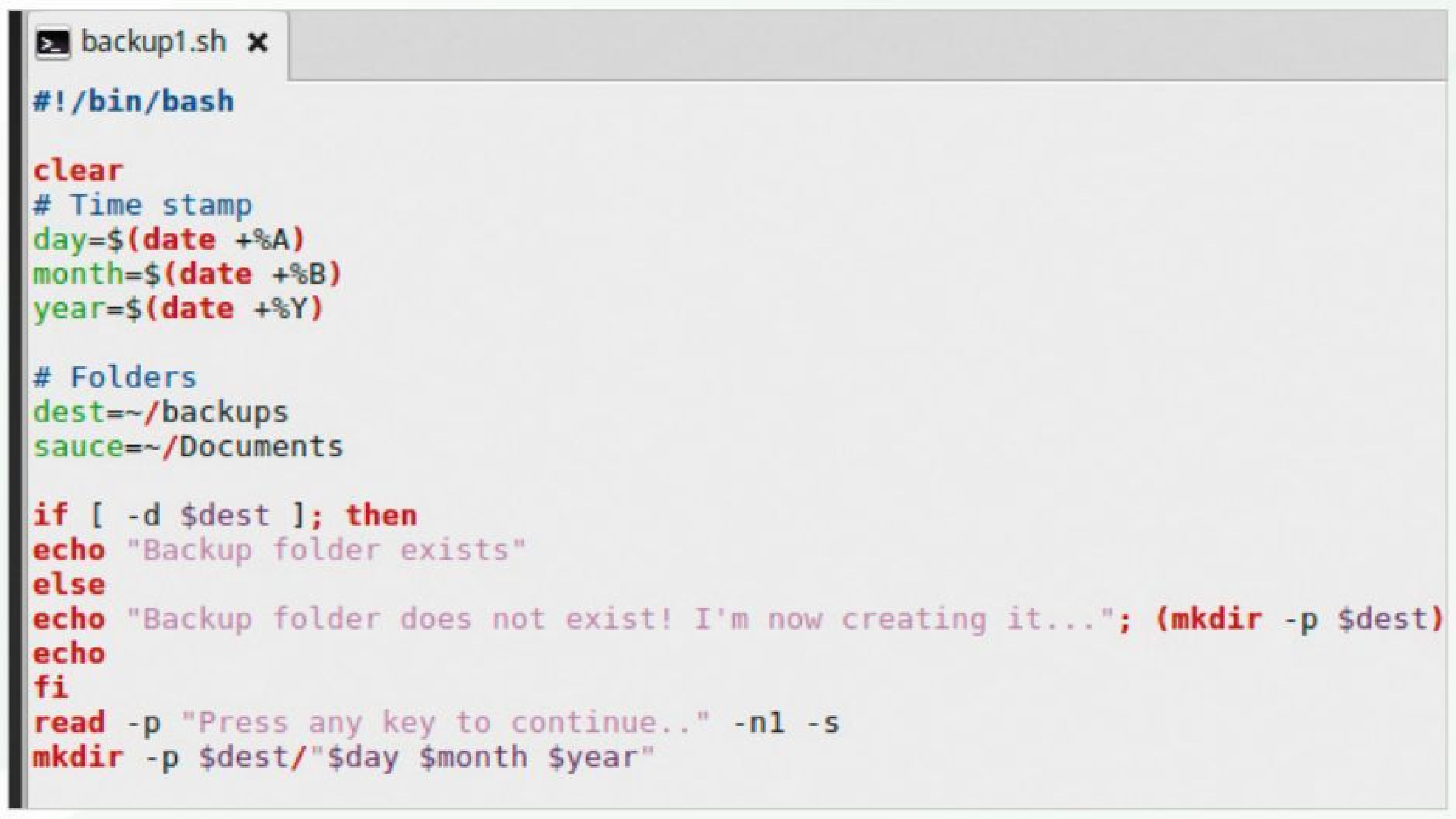
The previous script entries allowed you to create a Time Stamp, so you know when the backup was taken. You also created a 'dest' variable, which is the folder where the backup file will be created (~/backups). You can now add a section of code to first check if the ~/backups folder exits, if not, then it creates one.



```
#!/bin/bash

clear
# Time stamp
day=$(date +%A)
month=$(date +%B)
year=$(date +%Y)

# Folders
dest=~/backups
sauce=~/Documents

if [ -d $dest ]; then
echo "Backup folder exists"
else
echo "Backup folder does not exist! I'm now creating it..."; (mkdir -p $dest)
echo
fi
read -p "Press any key to continue.." -n1 -s
```

STEP 4

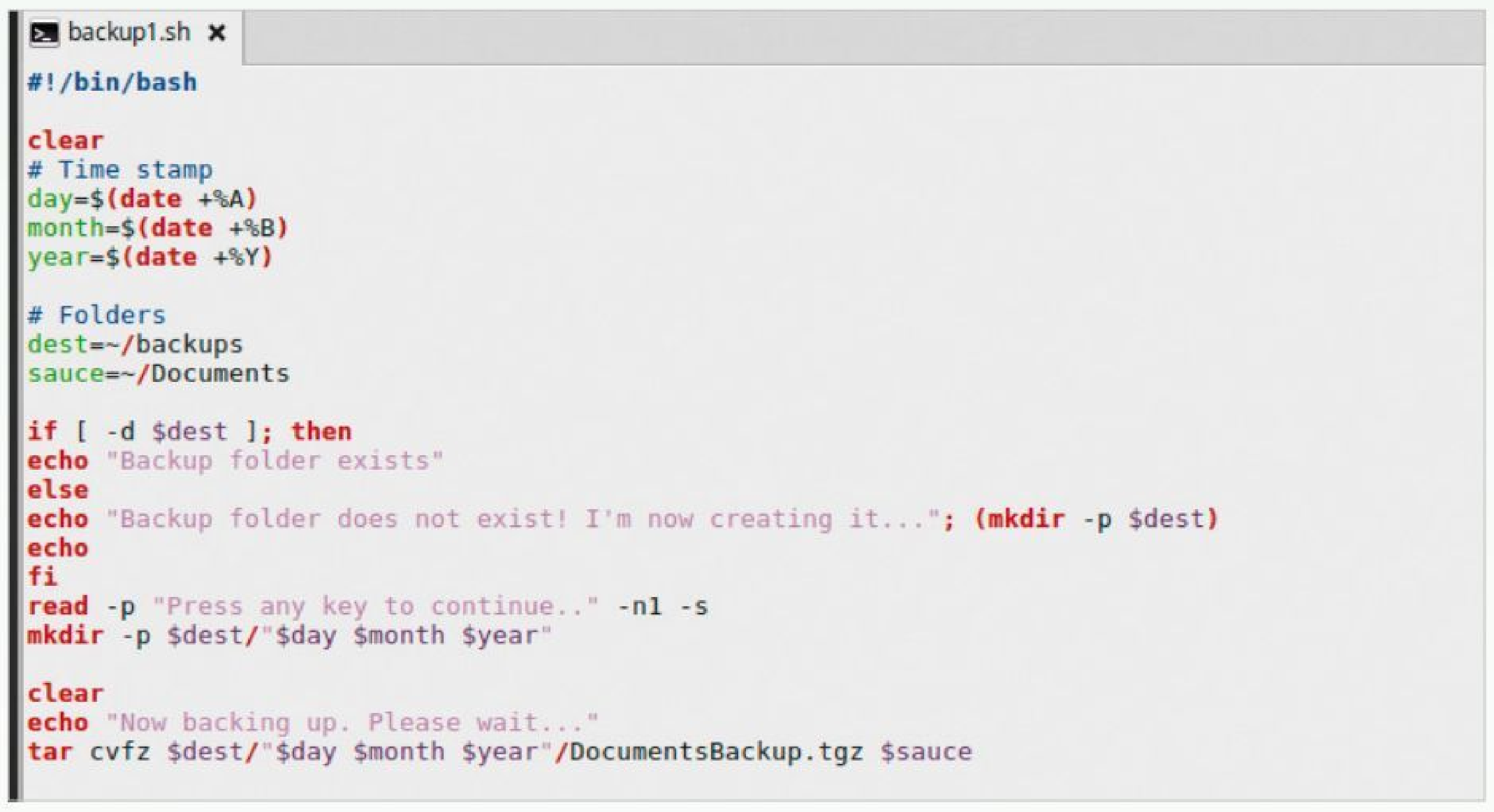
Once the ~/backups folder is created, we can now create a new subfolder within it based on the Time Stamp variables you set up at the beginning. Add `mkdir -p $dest/"$day $month $year"`. It's in here that you put the backup file relevant to that day/month/year.



```
#!/bin/bash

clear
# Time stamp
day=$(date +%A)
month=$(date +%B)
year=$(date +%Y)

# Folders
dest=~/backups
sauce=~/Documents

if [ -d $dest ]; then
echo "Backup folder exists"
else
echo "Backup folder does not exist! I'm now creating it..."; (mkdir -p $dest)
echo
fi
read -p "Press any key to continue.." -n1 -s
mkdir -p $dest/"$day $month $year"
```

STEP 5

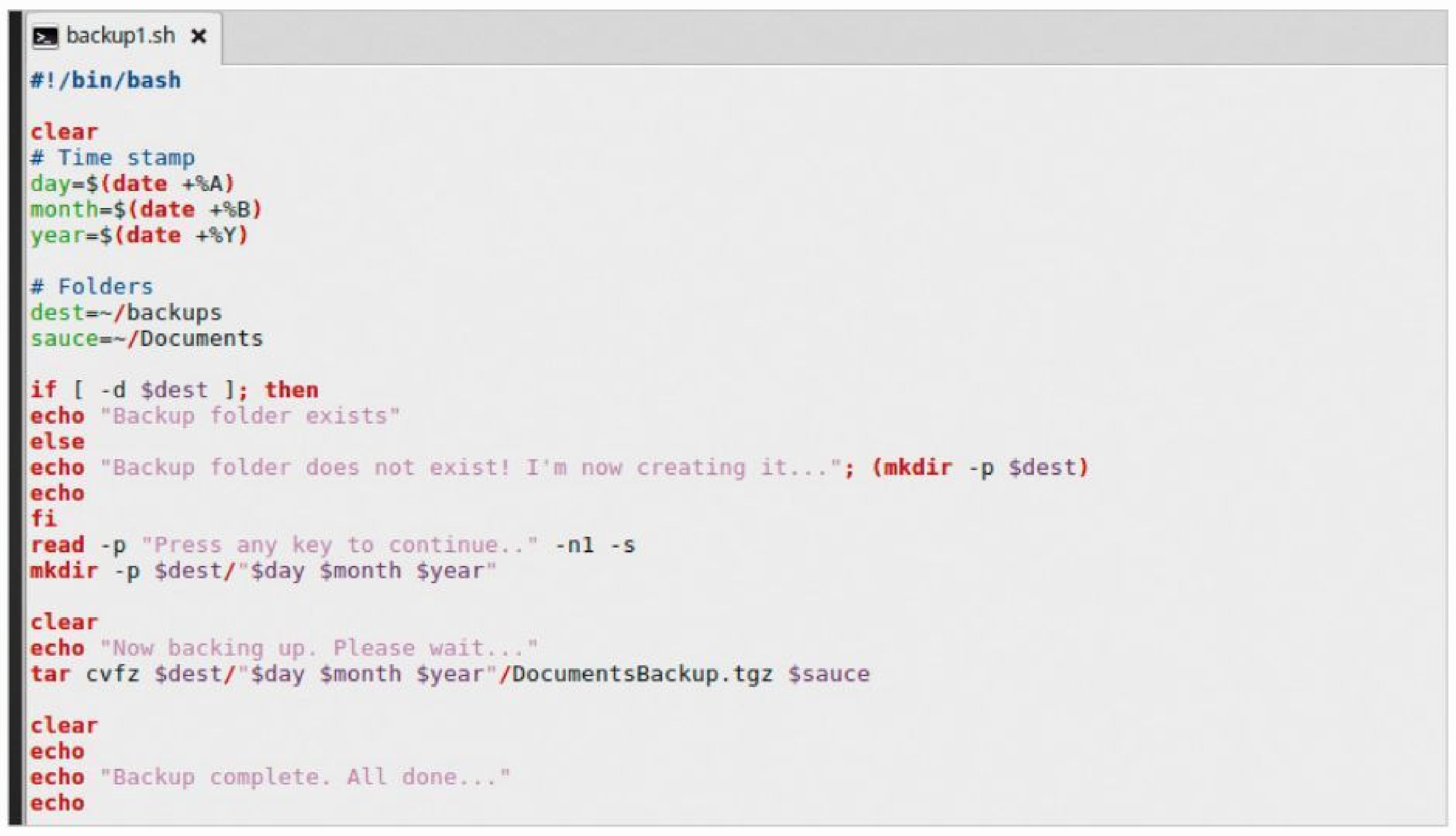
With everything in place, you can now enter the actual backup routine, based on the Tar command from Step 5. Combined with the variables, you have: `tar cvfz $dest/"$day $month $year"/DocumentsBackup.tgz $sauce`. In the screenshot, we added a handy "Now backing up..." echo command.



```
#!/bin/bash

clear
# Time stamp
day=$(date +%A)
month=$(date +%B)
year=$(date +%Y)

# Folders
dest=~/backups
sauce=~/Documents

if [ -d $dest ]; then
echo "Backup folder exists"
else
echo "Backup folder does not exist! I'm now creating it..."; (mkdir -p $dest)
echo
fi
read -p "Press any key to continue.." -n1 -s
mkdir -p $dest/"$day $month $year"

clear
echo "Now backing up. Please wait..."
tar cvfz $dest/"$day $month $year"/DocumentsBackup.tgz $sauce
```

STEP 6

Finally, you can add a friendly message: `echo "Backup complete. All done..."`. The completed script isn't too over-complex and it can be easily customised to include any folder within your Home area, as well as the entire Home area itself.



```
#!/bin/bash

clear
# Time stamp
day=$(date +%A)
month=$(date +%B)
year=$(date +%Y)

# Folders
dest=~/backups
sauce=~/Documents

if [ -d $dest ]; then
echo "Backup folder exists"
else
echo "Backup folder does not exist! I'm now creating it..."; (mkdir -p $dest)
echo
fi
read -p "Press any key to continue.." -n1 -s
mkdir -p $dest/"$day $month $year"

clear
echo "Now backing up. Please wait..."
tar cvfz $dest/"$day $month $year"/DocumentsBackup.tgz $sauce

clear
echo
echo "Backup complete. All done..."
echo
```

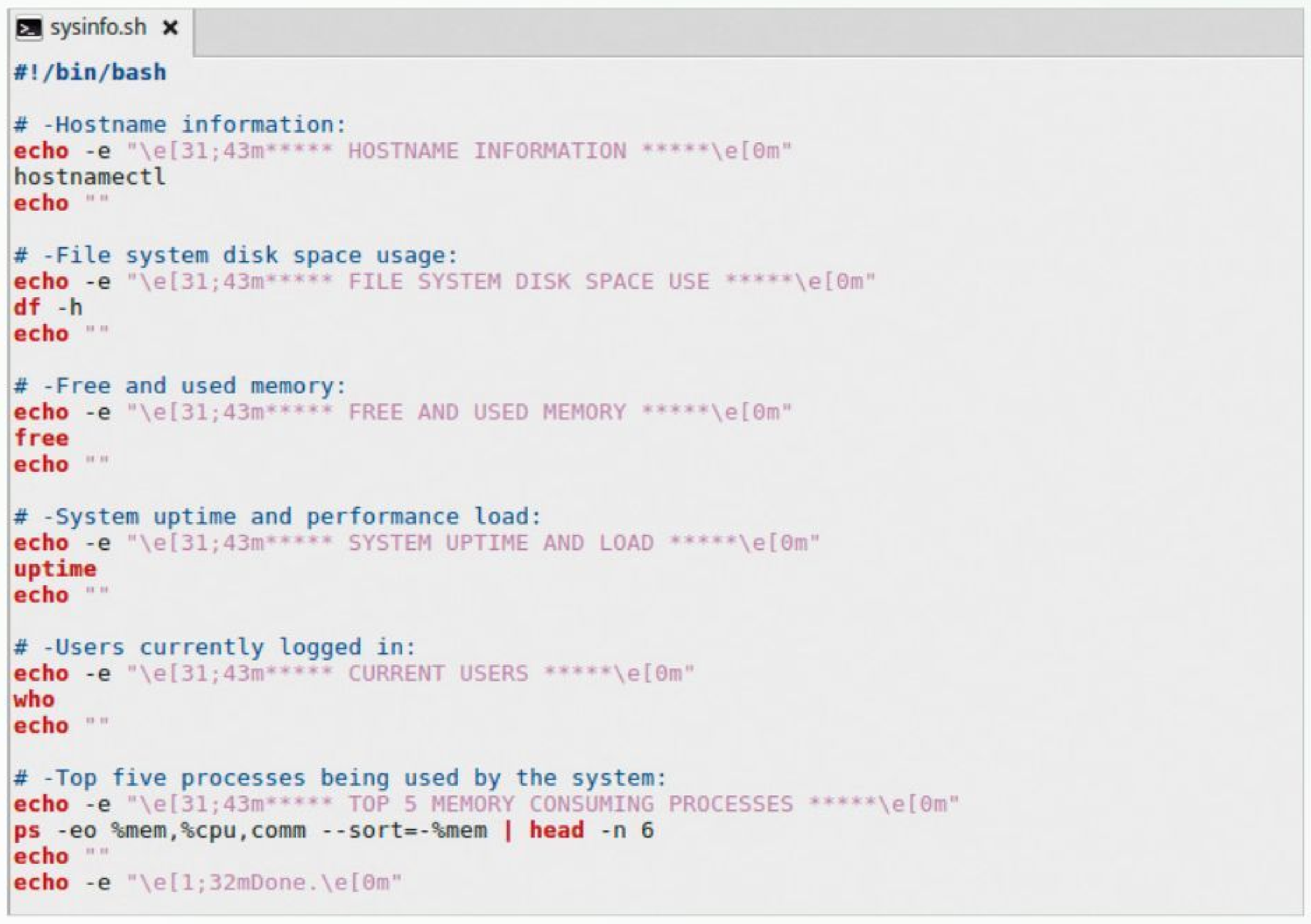
Creating Bash Scripts – Part 5

The backup script we looked at previously can be further amended to incorporate choices, user-interaction with regards to where the backup file will be copied to and so on. Automating tasks is one of the main benefits of Bash scripting, a simple script can help you out in many ways.

EASY AUTOMATION AND HANDY SCRIPTS

Entering line after line of commands to retrieve system information, find a file or rename a batch of files? A script is a better answer.

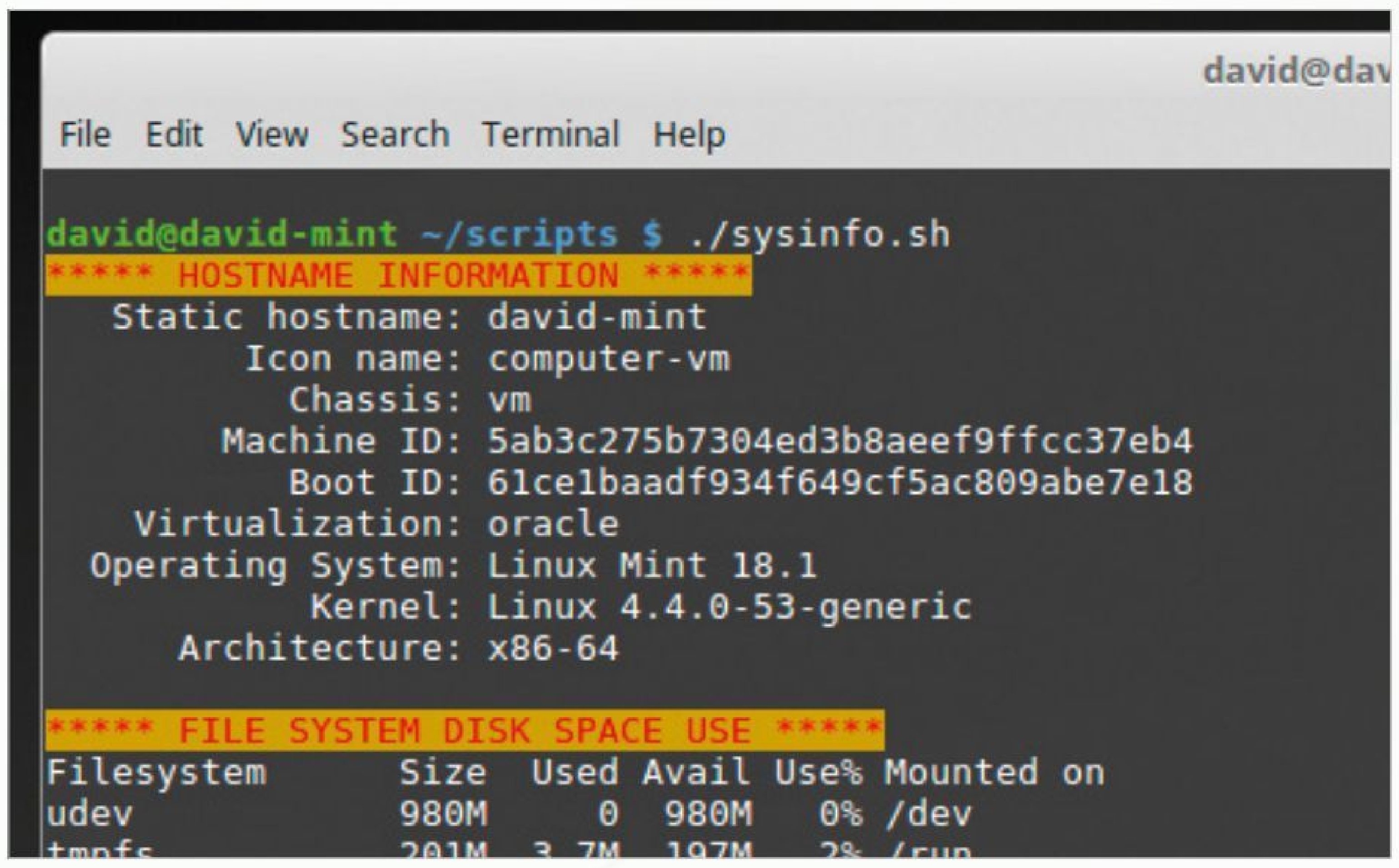
STEP 1 Let's start by creating a script to help display the Mint system information; always a handy thing to have. Create a new script called `sysinfo.sh` and enter the following into Xed, or the text editor of your choice.



sysinfo.sh ×

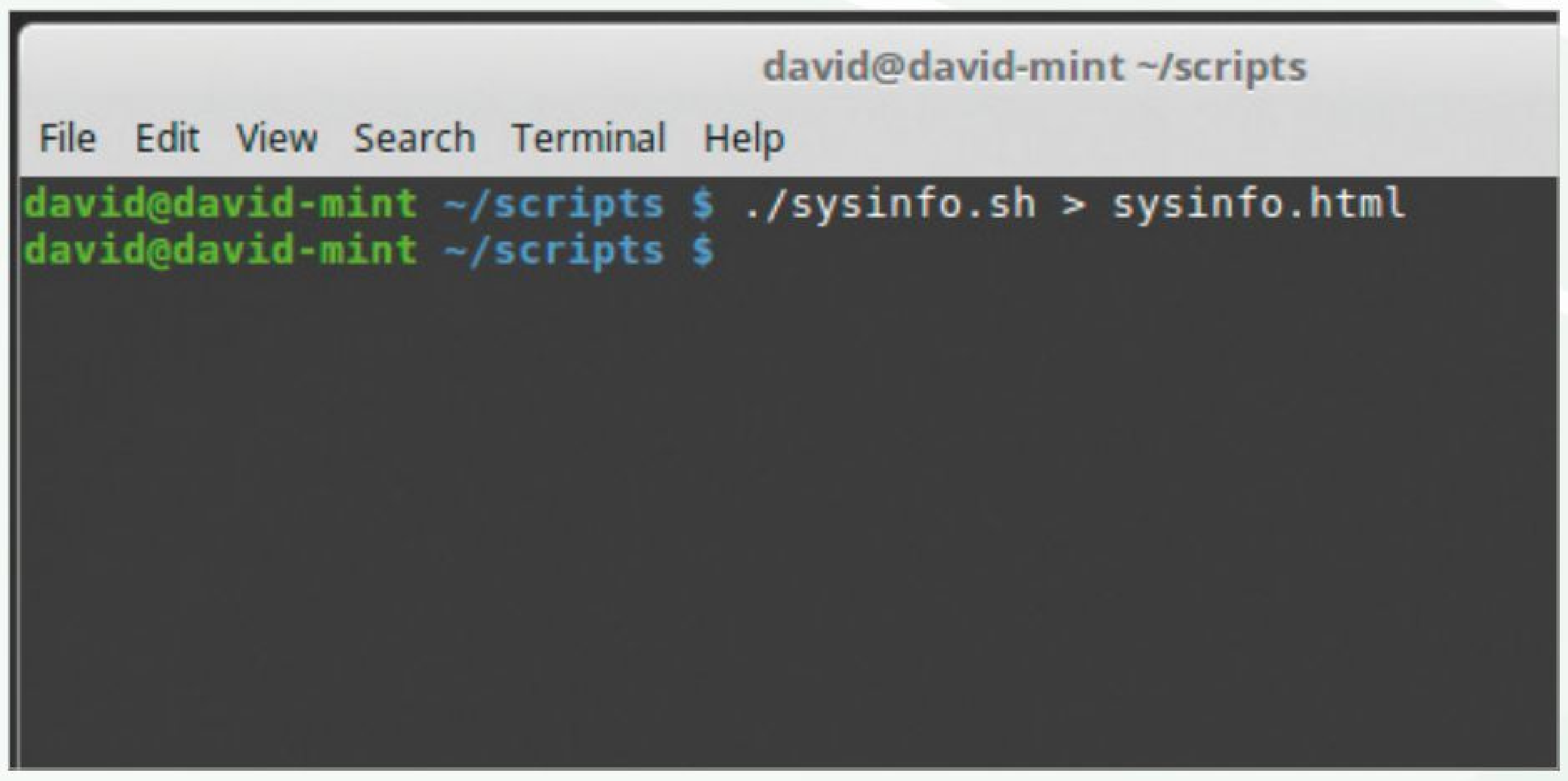
```
#!/bin/bash

# -Hostname information:
echo -e "\e[31;43m***** HOSTNAME INFORMATION *****\e[0m"
hostnamectl
echo ""

# -File system disk space usage:
echo -e "\e[31;43m***** FILE SYSTEM DISK SPACE USE *****\e[0m"
df -h
echo ""

# -Free and used memory:
echo -e "\e[31;43m***** FREE AND USED MEMORY *****\e[0m"
free
echo ""

# -System uptime and performance load:
echo -e "\e[31;43m***** SYSTEM UPTIME AND LOAD *****\e[0m"
uptime
echo ""

# -Users currently logged in:
echo -e "\e[31;43m***** CURRENT USERS *****\e[0m"
who
echo ""

# -Top five processes being used by the system:
echo -e "\e[31;43m***** TOP 5 MEMORY CONSUMING PROCESSES *****\e[0m"
ps -eo %mem,%cpu,comm --sort=-%mem | head -n 6
echo ""
echo -e "\e[1;32mDone.\e[0m"
```

STEP 2 We've included a couple of extra commands in this script. The first is the `-e` extension for echo, this means it'll enable echo interpretation of additional instances of a new line, as well as other special characters. The proceeding '31;43m' element enables colour for foreground and background.



```
david@david-mint ~/scripts $ ./sysinfo.sh
***** HOSTNAME INFORMATION *****
   Static hostname: david-mint
         Icon name: computer-vm
           Chassis: vm
        Machine ID: 5ab3c275b7304ed3b8aeef9ffcc37eb4
           Boot ID: 61ce1baadf934f649cf5ac809abe7e18
    Virtualization: oracle
  Operating System: Linux Mint 18.1
            Kernel: Linux 4.4.0-53-generic
      Architecture: x86-64

***** FILE SYSTEM DISK SPACE USE *****
Filesystem      Size  Used Avail Use% Mounted on
udev            980M     0  980M   0% /dev
tmpfs           201M  3.7M  197M   2% /run
```

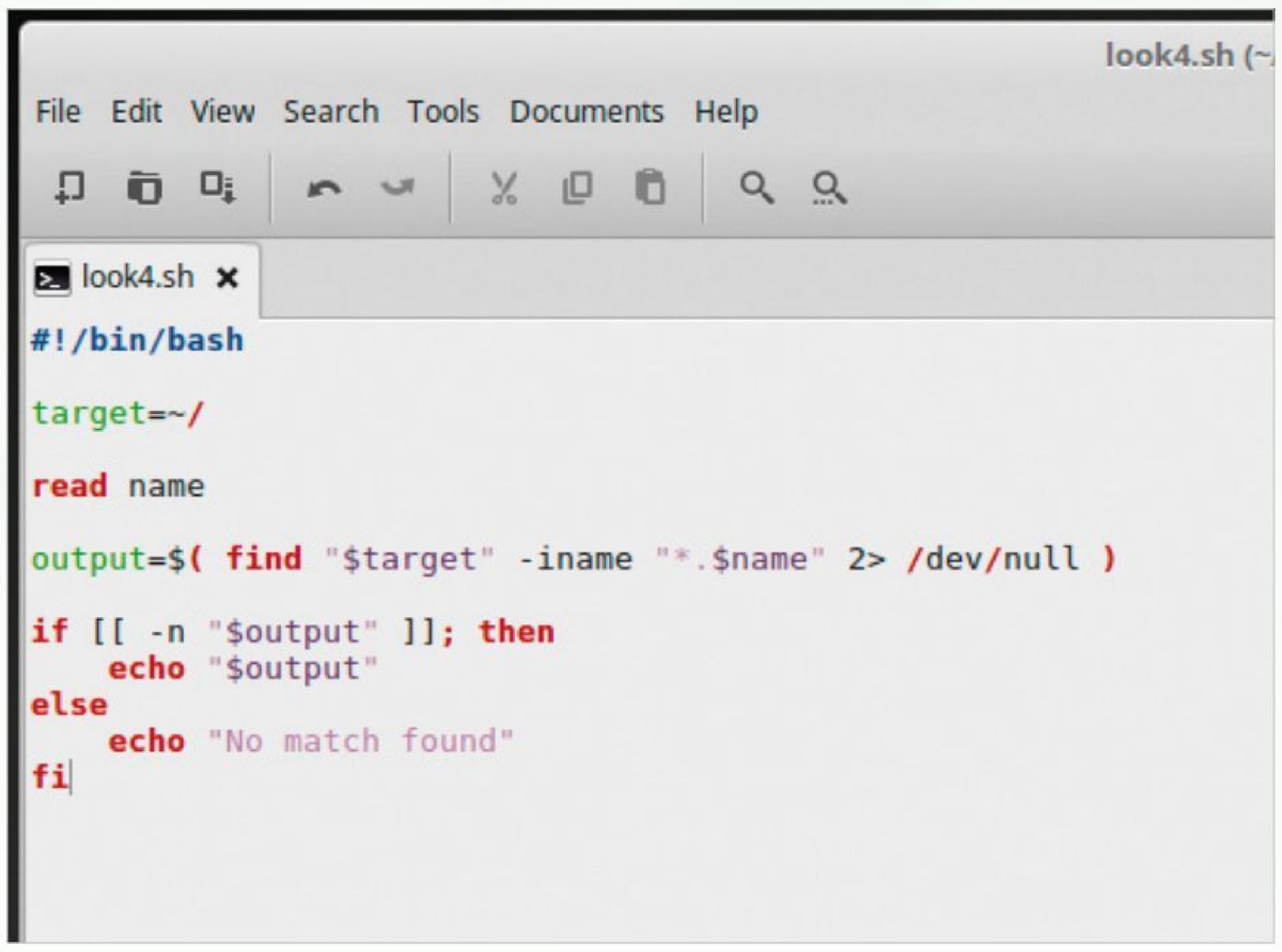
STEP 3 Each of the sections runs a different Terminal command, outputting the results under the appropriate heading. You can include a lot more, such as the current aliases being used in the system, the current time and date and so on. Plus, you could also pipe all that information into a handy HTML file, ready to be viewed in a browser.



david@david-mint ~/scripts
File Edit View Search Terminal Help

```
david@david-mint ~/scripts $ ./sysinfo.sh > sysinfo.html
david@david-mint ~/scripts $
```

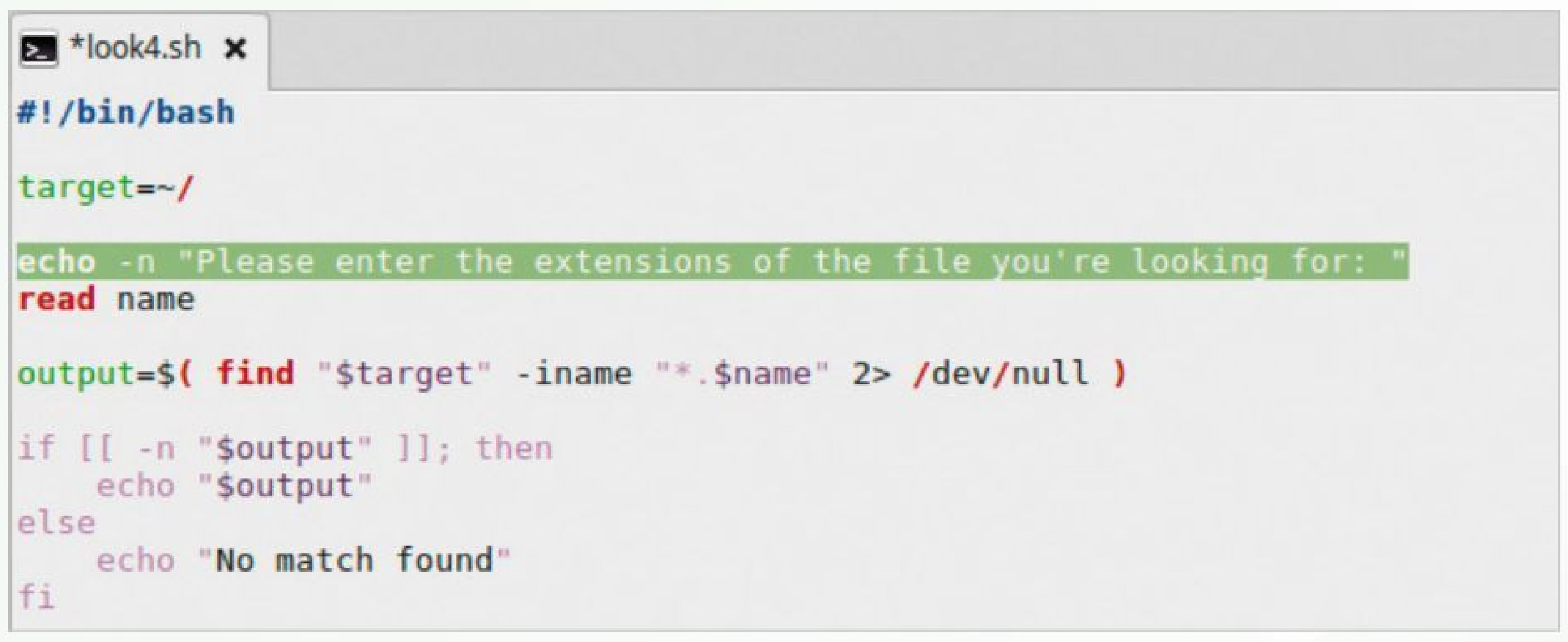
STEP 4 Although there are simple Terminal commands to help you look for a particular file or folder, it's often more fun to create a script to help you. Plus, you can use that script for other non-technical users. Create a new script called `look4.sh`, entering the content from the screenshot below.



```
#!/bin/bash

target=~/

read name

output=$( find "$target" -iname "*.$name" 2> /dev/null )

if [[ -n "$output" ]]; then
    echo "$output"
else
    echo "No match found"
fi
```

STEP 5

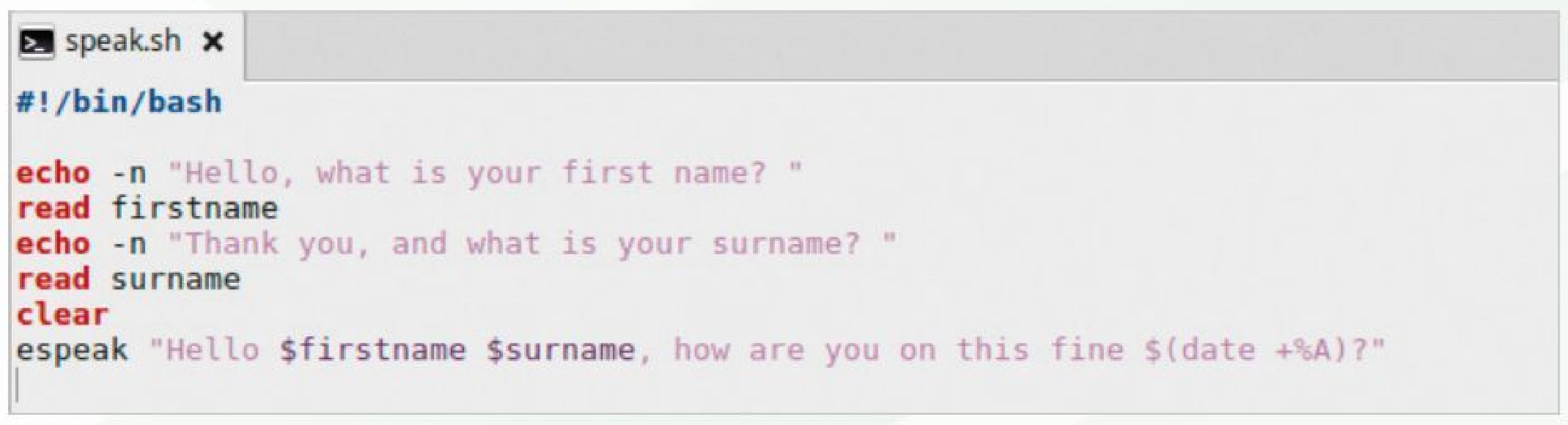
When executed the script waits for input from the user, in this case the file extension, such as jpg, mp4 and so on. It's not very friendly though. Let's make it a little friendlier. Add an echo, with: `echo -n "Please enter the extension of the file you're looking for: "`, just before the read command.



```
*look4.sh ✕
#!/bin/bash

target=~/

echo -n "Please enter the extensions of the file you're looking for: "
read name

output=$( find "$target" -iname "*.$name" 2> /dev/null )

if [[ -n "$output" ]]; then
    echo "$output"
else
    echo "No match found"
fi
```

STEP 6

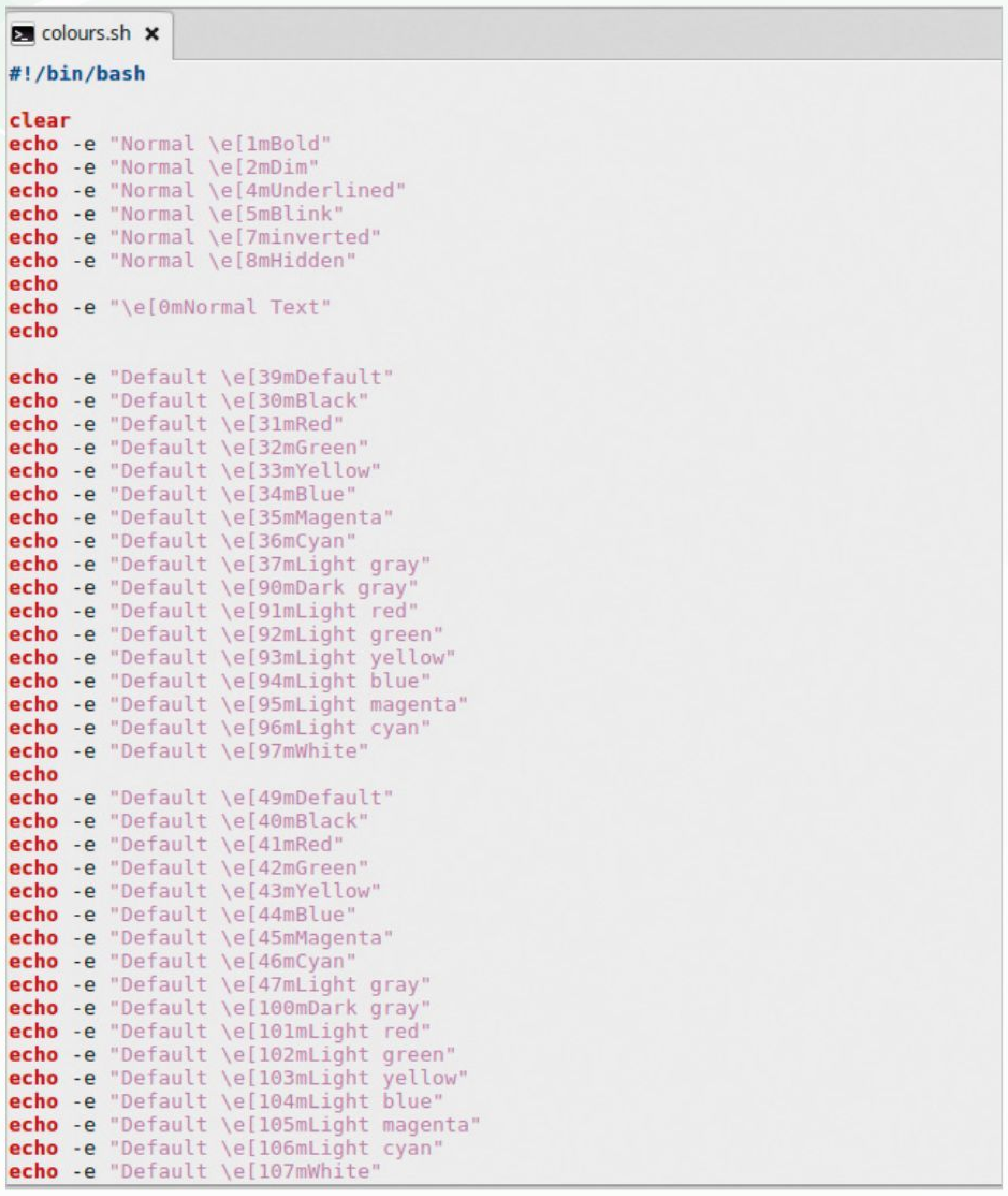
Here's an interesting, fun kind of script using the app espeak. Install espeak with `sudo apt-get install espeak`, then enter the text below into a new script called `speak.sh`. As you can see it's a rehash of the first greeting script we ran. Only this time, it uses the variables in the espeak output.



```
speak.sh ✕
#!/bin/bash

echo -n "Hello, what is your first name? "
read firstname
echo -n "Thank you, and what is your surname? "
read surname
clear
espeak "Hello $firstname $surname, how are you on this fine $(date +%A)?"
```

STEP 7

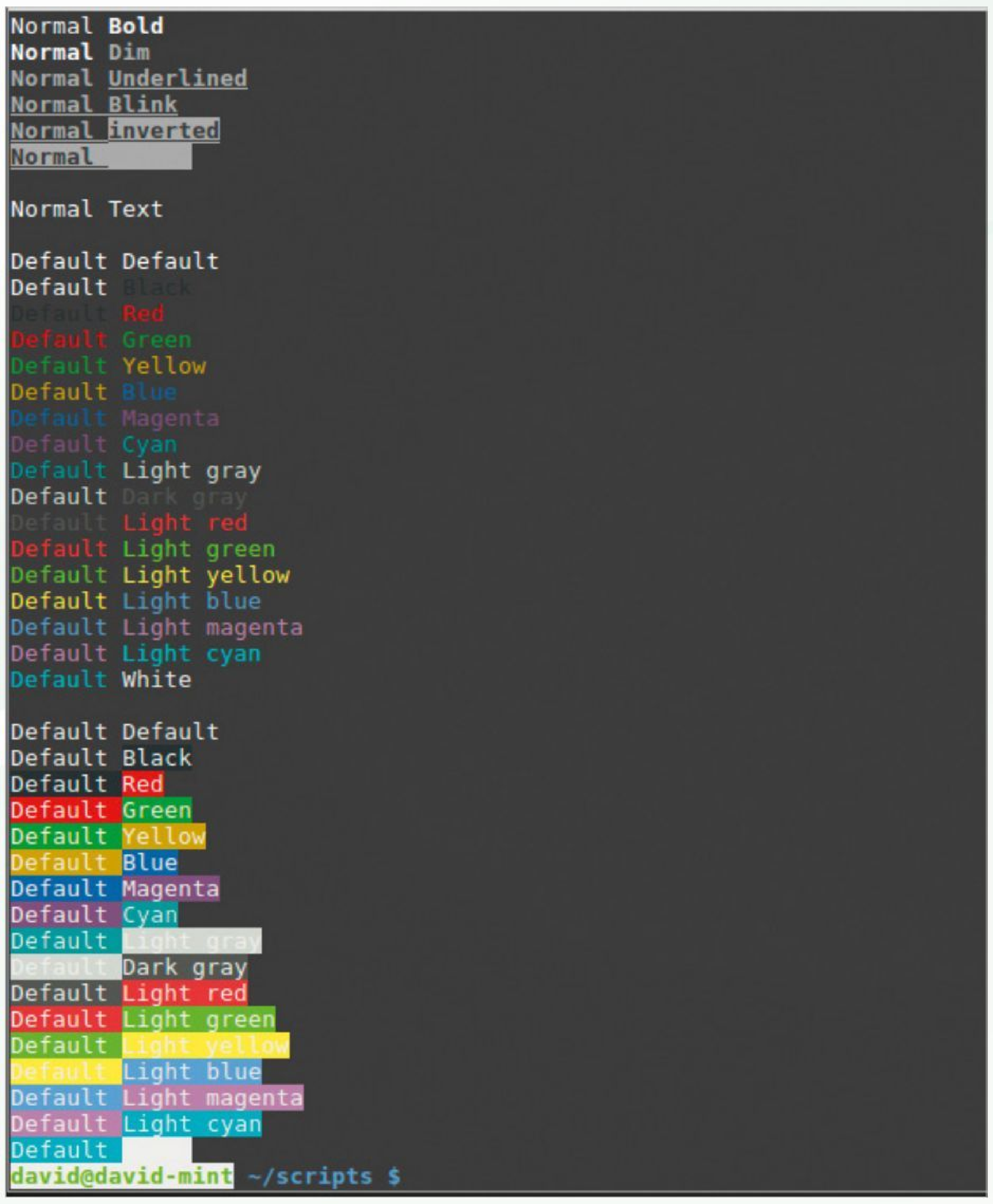
We briefly looked at putting some colours in the output for our scripts. Whilst it's too long to dig a little deeper into the colour options, here's a script that outputs what's available. Create a new script called `colours.sh` and enter the text (see below) into it.



```
colours.sh ✕
#!/bin/bash

clear
echo -e "Normal \e[1mBold"
echo -e "Normal \e[2mDim"
echo -e "Normal \e[4mUnderlined"
echo -e "Normal \e[5mBlink"
echo -e "Normal \e[7minverted"
echo -e "Normal \e[8mHidden"
echo
echo -e "\e[0mNormal Text"
echo

echo -e "Default \e[39mDefault"
echo -e "Default \e[30mBlack"
echo -e "Default \e[31mRed"
echo -e "Default \e[32mGreen"
echo -e "Default \e[33mYellow"
echo -e "Default \e[34mBlue"
echo -e "Default \e[35mMagenta"
echo -e "Default \e[36mCyan"
echo -e "Default \e[37mLight gray"
echo -e "Default \e[90mDark gray"
echo -e "Default \e[91mLight red"
echo -e "Default \e[92mLight green"
echo -e "Default \e[93mLight yellow"
echo -e "Default \e[94mLight blue"
echo -e "Default \e[95mLight magenta"
echo -e "Default \e[96mLight cyan"
echo -e "Default \e[97mWhite"
echo
echo -e "Default \e[49mDefault"
echo -e "Default \e[40mBlack"
echo -e "Default \e[41mRed"
echo -e "Default \e[42mGreen"
echo -e "Default \e[43mYellow"
echo -e "Default \e[44mBlue"
echo -e "Default \e[45mMagenta"
echo -e "Default \e[46mCyan"
echo -e "Default \e[47mLight gray"
echo -e "Default \e[100mDark gray"
echo -e "Default \e[101mLight red"
echo -e "Default \e[102mLight green"
echo -e "Default \e[103mLight yellow"
echo -e "Default \e[104mLight blue"
echo -e "Default \e[105mLight magenta"
echo -e "Default \e[106mLight cyan"
echo -e "Default \e[107mWhite"
```

STEP 8

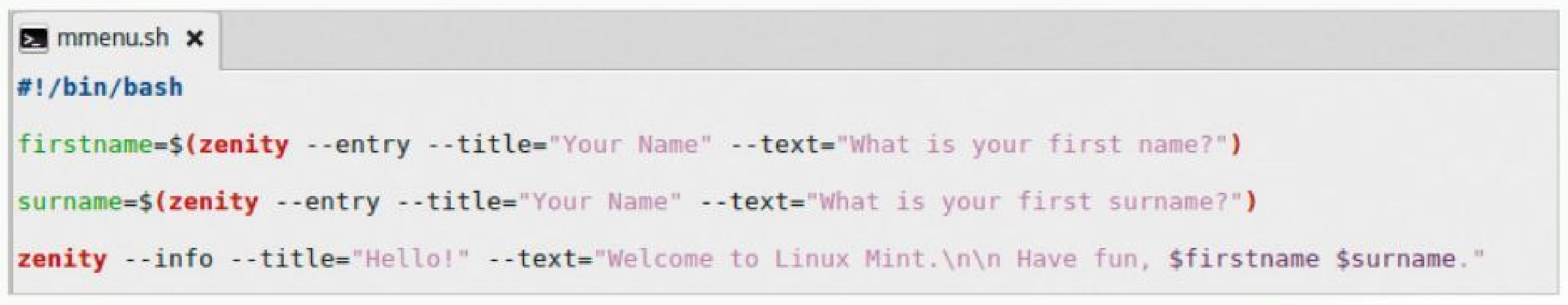
The output from colours.sh can, of course, be mixed together, bringing different effects depending on what you want to the output to say. For example, white text in a red background flashing (or blinking). Sadly the blinking effect doesn't work on all Terminals, so you may need to change to a different Terminal.



```
Normal Bold
Normal Dim
Normal Underlined
Normal Blink
Normal inverted
Normal

Normal Text

Default Default
Default Black
Default Red
Default Green
Default Yellow
Default Blue
Default Magenta
Default Cyan
Default Light gray
Default Dark gray
Default Light red
Default Light green
Default Light yellow
Default Light blue
Default Light magenta
Default Light cyan
Default White

Default Default
Default Black
Default Red
Default Green
Default Yellow
Default Blue
Default Magenta
Default Cyan
Default Light gray
Default Dark gray
Default Light red
Default Light green
Default Light yellow
Default Light blue
Default Light magenta
Default Light cyan
Default
david@david-mint ~/scripts $
```

STEP 9

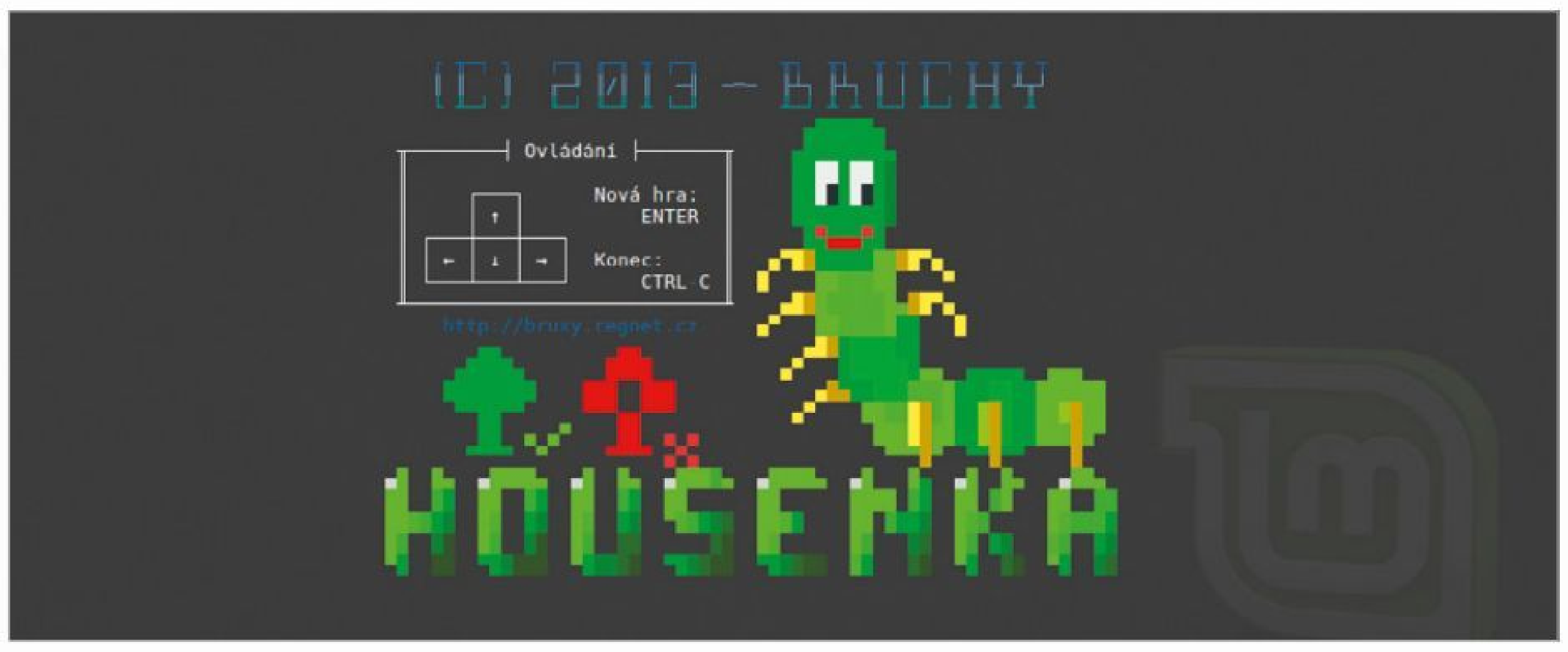
Whilst we're on making fancy scripts, how about using Zenity to output a graphical interface? Enter what you see below into a new script, `mmenu.sh`. Make it executable and then run it. You should have a couple of dialogue boxes appear, followed by a final message.



```
mmenu.sh ✕
#!/bin/bash

firstname=$(zenity --entry --title="Your Name" --text="What is your first name?")

surname=$(zenity --entry --title="Your Name" --text="What is your first surname?")

zenity --info --title="Hello!" --text="Welcome to Linux Mint.\n\n Have fun, $firstname $surname."
```

STEP 10

While gaming in a Bash script isn't something that's often touched upon, it is entirely possible, albeit, a little basic. If you fancy playing a game, enter `wget http://bruxy.regnet.cz/linux/housenka/housenka.sh`, make the script executable and run it. It's in Polish, written by Martin Bruchanov but we're sure you can modify it. Hint: the title screen is in Base64.



Command Line Quick Reference

When you start using Linux full time, you will quickly realise that the graphical interfaces of Ubuntu, Mint, etc. are great for many tasks but not great for all tasks. Understanding how to use the command line not only builds your understanding of Linux but also improves your knowledge of coding and programming in general. Our command line quick reference is designed to help you master Linux quicker.

TOP 10 COMMANDS

These may not be the most common commands used by everyone but they will certainly feature frequently for many users of Linux and the command line.

cd

The `cd` command is one of the commands you will use the most at the command line in Linux. It allows you to change your working directory. You use it to move around within the hierarchy of your file system. You can also use chdir.

ls

The `ls` command shows you the files in your current directory. Used with certain options, it lets you see file sizes, when files where created and file permissions. For example, `ls ~` shows you the files that are in your home directory.

cp

The `cp` command is used to make copies of files and directories. For example, `cp file sub` makes an exact copy of the file whose name you entered and names the copy sub but the first file will still exist with its original name.

pwd

The `pwd` command prints the full pathname of the current working directory (pwd stands for "print working directory"). Note that the GNOME terminal also displays this information in the title bar of its window.

clear

The `clear` command clears your screen if this is possible. It looks in the environment for the terminal type and then in the terminfo database to figure out how to clear the screen. This is equivalent to typing Control-L when using the bash shell.

mv

The `mv` command moves a file to a different location or renames a file. For example `mv file sub` renames the original file to sub. `mv sub ~/Desktop` moves the file 'sub' to your desktop directory but does not rename it. You must specify a new filename to rename a file.

chown

The `chown` command changes the user and/or group ownership of each given file. If only an owner (a user name or numeric user ID) is given, that user is made the owner of each given file, and the files' group is not changed.

cmod

The `chmod` command changes the permissions on the files listed. Permissions are based on a fairly simple model. You can set permissions for user, group and world and you can set whether each can read, write and or execute the file.

rm

The `rm` command removes (deletes) files or directories. The removal process unlinks a filename in a filesystem from data on the storage device and marks that space as usable by future writes. In other words, removing files increases the amount of available space on your disk.

mkdir

Short for "make directory", `mkdir` is used to create directories on a file system, if the specified directory does not already exist. For example, `mkdir work` creates a work directory. More than one directory may be specified when calling mkdir.

C:\Commonly_Used_Commands
SAMSUNG

USEFUL HELP/INFO COMMANDS

The following commands are useful for when you are trying to learn more about the system or program you are working with in Linux. You might not need them every day, but when you do, they will be invaluable.

free

The `free` command displays the total amount of free and used physical and swap memory in the system. For example, `free -m` gives tEWormation using megabytes.

df

The `df` command displays filesystem disk space usage for all partitions. The command `df-h` is probably the most useful (the -h means human-readable).

top

The `top` program provides a dynamic realtime view of a running system. It can display system summary information, as well as a list of processes.

uname-a

The `uname` command with the `-a` option prints all system information, including machine name, kernel name, version and a few other details

ps

The `ps` command allows you to view all the processes running on the machine. Every operating system's version of ps is slightly different but all do the same thing.

grep

The `grep` command allows you to search inside a number of files for a particular search pattern and then print matching lines. An example would be: `grep blah file`.

sed

The `sed` command opens a stream editor. A stream editor is used to perform text transformations on an input stream: a file or input from a pipeline.

adduser

The `adduser` command adds a new user to the system. Similarly, the `addgroup` command adds a new group to the system.

deluser

The `deluser` command removes a user from the system. To remove the user's files and home directory, you need to add the `-remove-home` option.

delgroup

The `delgroup` command removes a group from the system. You cannot remove a group that is the primary group of any users.

man man

The `man man` command brings up the manual entry for the man command, which is a great place to start when using it.

man intro

The `man intro` command is especially useful. It displays the Introduction to User Commands, which is a well written, fairly brief introduction to the Linux command line.

A-Z of Linux Mint Commands

There are literally thousands of commands, so while this is not a complete A-Z, it does contain many of the commands you will most likely need. You will probably find that you end up using a smaller set of commands over and over again but having an overall knowledge is still very useful.

A

`adduser`	Add a new user
`arch`	Print machine architecture
`awk`	Find and replace text within file(s)

B

`bc`	An arbitrary precision calculator language

C

`cat`	Concatenate files and print on the standard output
`chdir`	Change working directory
`chgrp`	Change the group ownership of files
`chroot`	Change root directory
`cksum`	Print CRC checksum and byte counts
`cmp`	Compare two files
`comm`	Compare two sorted files line by line
`cp`	Copy one or more files to another location
`crontab`	Schedule a command to run at a later time
`csplit`	Split a file into context-determined pieces
`cut`	Divide a file into several parts

D

`date`	Display or change the date & time
`dc`	Desk calculator
`dd`	Data Dump, convert and copy a file
`diff`	Display the differences between two files
`dirname`	Convert a full path name to just a path
`du`	Estimate file space usage

E

`echo`	Display message on screen
`ed`	A line oriented text editor (edlin)
`egrep`	Search file(s) for lines that match an extended expression
`env`	Display, set or remove environment variables
`expand`	Convert tabs to spaces
`expr`	Evaluate expressions

F

`factor`	Print prime factors
`fdisk`	Partition table manipulator for Linux
`fgrep`	Search file(s) for lines that match a fixed string
`find`	Search for files that meet a desired criteria
`fmt`	Reformat paragraph text
`fold`	Wrap text to fit a specified width
`format`	Format disks or tapes
`fsck`	Filesystem consistency check and repair

G

`gawk`	Find and Replace text within file(s)
`grep`	Search file(s) for lines that match a given pattern
`groups`	Print group names a user is in
`gzip`	Compress or decompress named file(s)

H

`head`	Output the first part of file(s)
`hostname`	Print or set system name

I

`id`	Print user and group ids
`info`	Help info
`install`	Copy files and set attributes

J

`join`	Join lines on a common field

K

kill	Stop a process from running

L

less	Display output one screen at a time
ln	Make links between files
locate	Find files
logname	Print current login name
lpc	Line printer control program
lpr	Off line print
lprm	Remove jobs from the print queue

M

man	See Help manual
mkdir	Create new folder(s)
mkfifo	Make FIFOs (named pipes)
mknod	Make block or character special files
more	Display output one screen at a time
mount	Mount a file system

N

nice	Set the priority of a command or job
nl	Number lines and write files
nohup	Run a command immune to hangups

P

passwd	Modify a user password
paste	Merge lines of files
pathchk	Check file name portability
pr	Convert text files for printing
printcap	Printer capability database
printenv	Print environment variables
printf	Format and print data

Q

quota	Display disk usage and limits
quotacheck	Scan a file system for disk usage
quotactl	Set disk quotas

R

ram	Ram disk device
rcp	Copy files between two machines
rm	Remove files
rmdir	Remove folder(s)
rpm	Remote Package Manager
rsync	Remote file copy (synchronise file trees)

S

screen	Terminal window manager
sdiff	Merge two files interactively
select	Accept keyboard input
seq	Print numeric sequences
shutdown	Shutdown or restart linux
sleep	Delay for a specified time
sort	Sort text files
split	Split a file into fixed-size pieces
su	Substitute user identity
sum	Print a checksum for a file
symlink	Make a new name for a file
sync	Synchronise data on disk with memory

T

tac	Concatenate and write files in reverse
tail	Output the last part of files
tar	Tape Archiver
tee	Redirect output to multiple files
test	Evaluate a conditional expression
time	Measure Program Resource Use
touch	Change file timestamps
top	List processes running on the system
traceroute	Trace Route to Host
tr	Translate, squeeze and or delete characters
tsort	Topological sort

U

umount	Unmount a device
unexpand	Convert spaces to tabs
uniq	Uniquify files
units	Convert units from one scale to another
unshar	Unpack shell archive scripts
useradd	Create new user account
usermod	Modify user account
users	List users currently logged in

V

vdir	Verbosely list directory contents (`ls -l -b’)

W

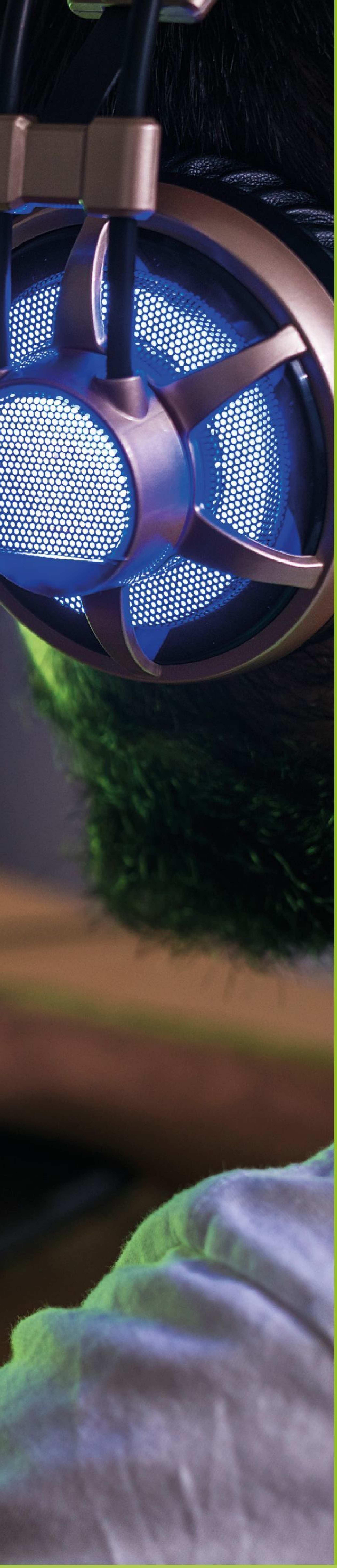
watch	Execute or display a program periodically
wc	Print byte, word, and line counts
whereis	Report all known instances of a command
which	Locate a program file in the user’s path
who	Print all usernames currently logged in
whoami	Print the current user id and name

X

xargs	Execute utility, passing constructed argument list(s)

Y

yes	Print a string until interrupted



Advanced:

Exploring LMDE 2

and Furthering Your Mint experience

LMDE 2, the second release of Linux Mint Debian Edition, is another version of Mint that uses the Debian package base instead of Ubuntu's. It's classed as being designed for advanced and experienced users only but we think it's an excellent place to further your skills and experiment in. LMDE 2 isn't scary, it's just a little different to the mainstream Mint versions.

There's a lot you can do with Linux Mint, beyond the traditional desktop approach. We'll take a look at some project ideas for you to work toward and also take a look at where you can find help with Mint should you ever need it.

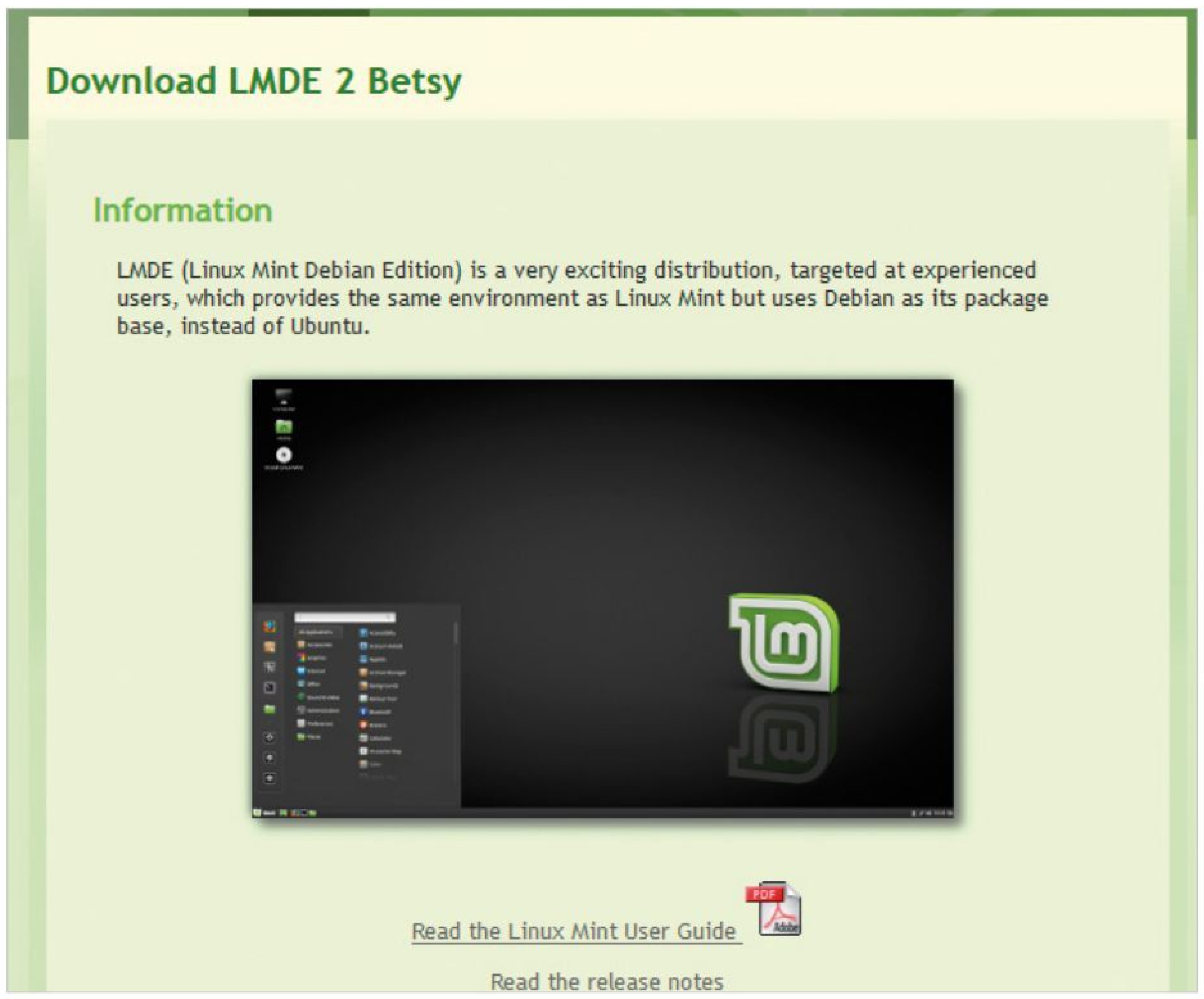
Introduction to LMDE 2

We previously mentioned the less mainstream version of Linux Mint, LMDE 2, earlier in the book but let's take a moment to look deeper into this rather intriguing distribution. LMDE 2 is the latest version of this rolling update desktop.

TO LMDE OR NOT TO LMDE?

LMDE initially sounds a little scary, with its 'targeted at experienced users' information entry. However, as long as your personal data is backed up, you may find LMDE to be an exceptional version of Mint.

STEP 1 There are currently four versions of LMDE 2 available: 32-bit and 64-bit Cinnamon, and 32-bit and 64-bit MATE. You can navigate to www.linuxmint.com/download_lmde.php, to find the available links for each of the different versions.



Download LMDE 2 Betsy

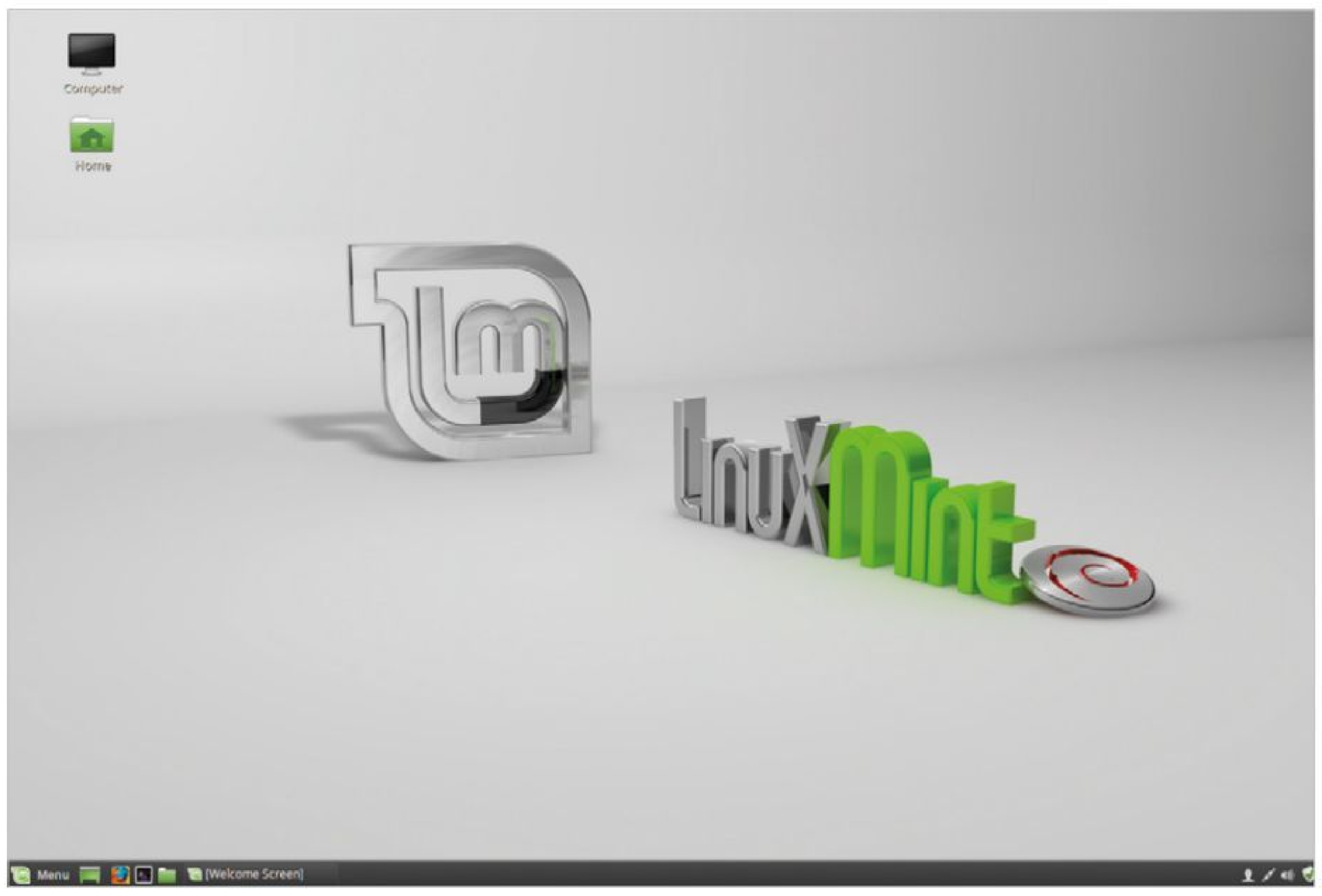
Information

LMDE (Linux Mint Debian Edition) is a very exciting distribution, targeted at experienced users, which provides the same environment as Linux Mint but uses Debian as its package base, instead of Ubuntu.

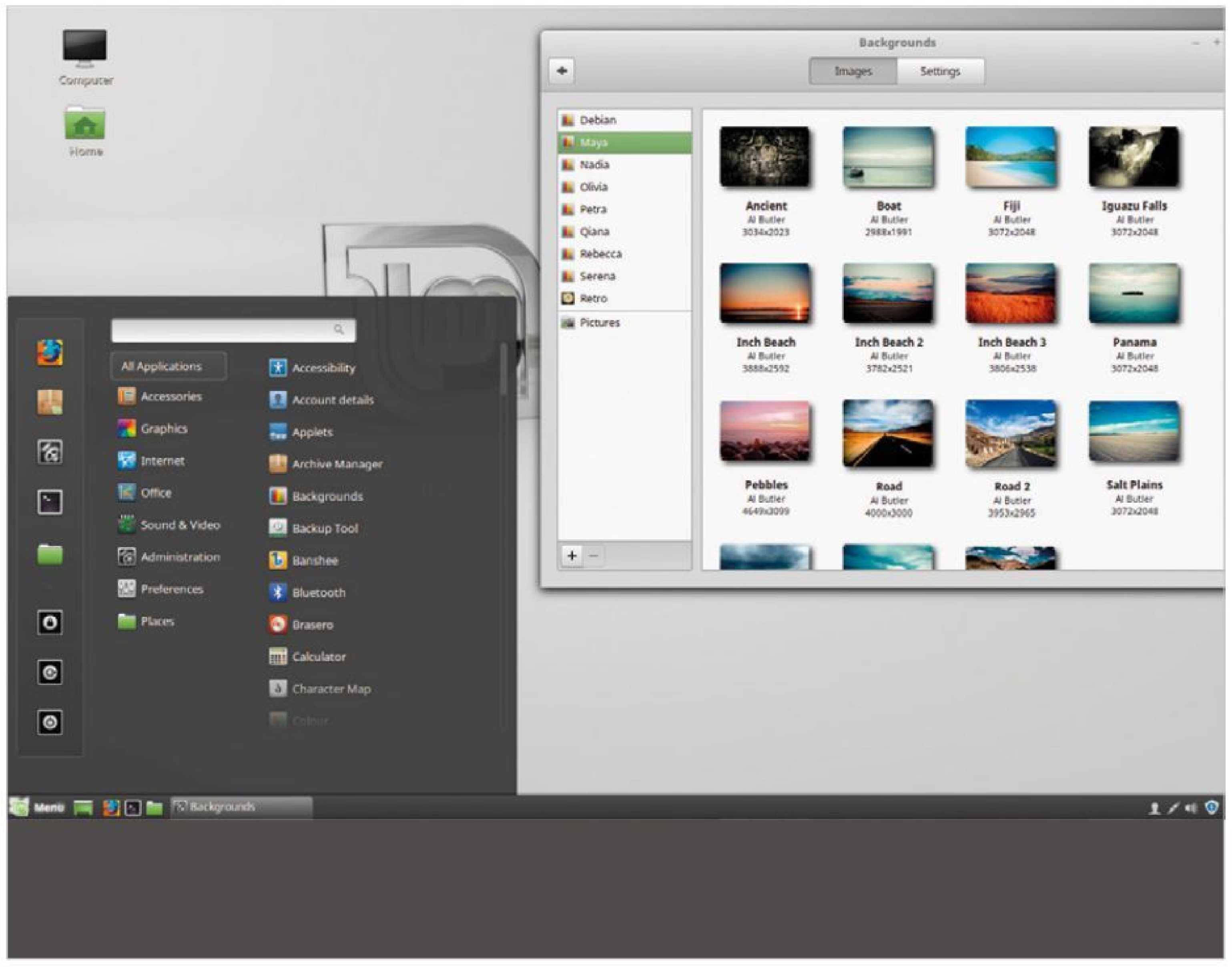
Read the Linux Mint User Guide

Read the release notes

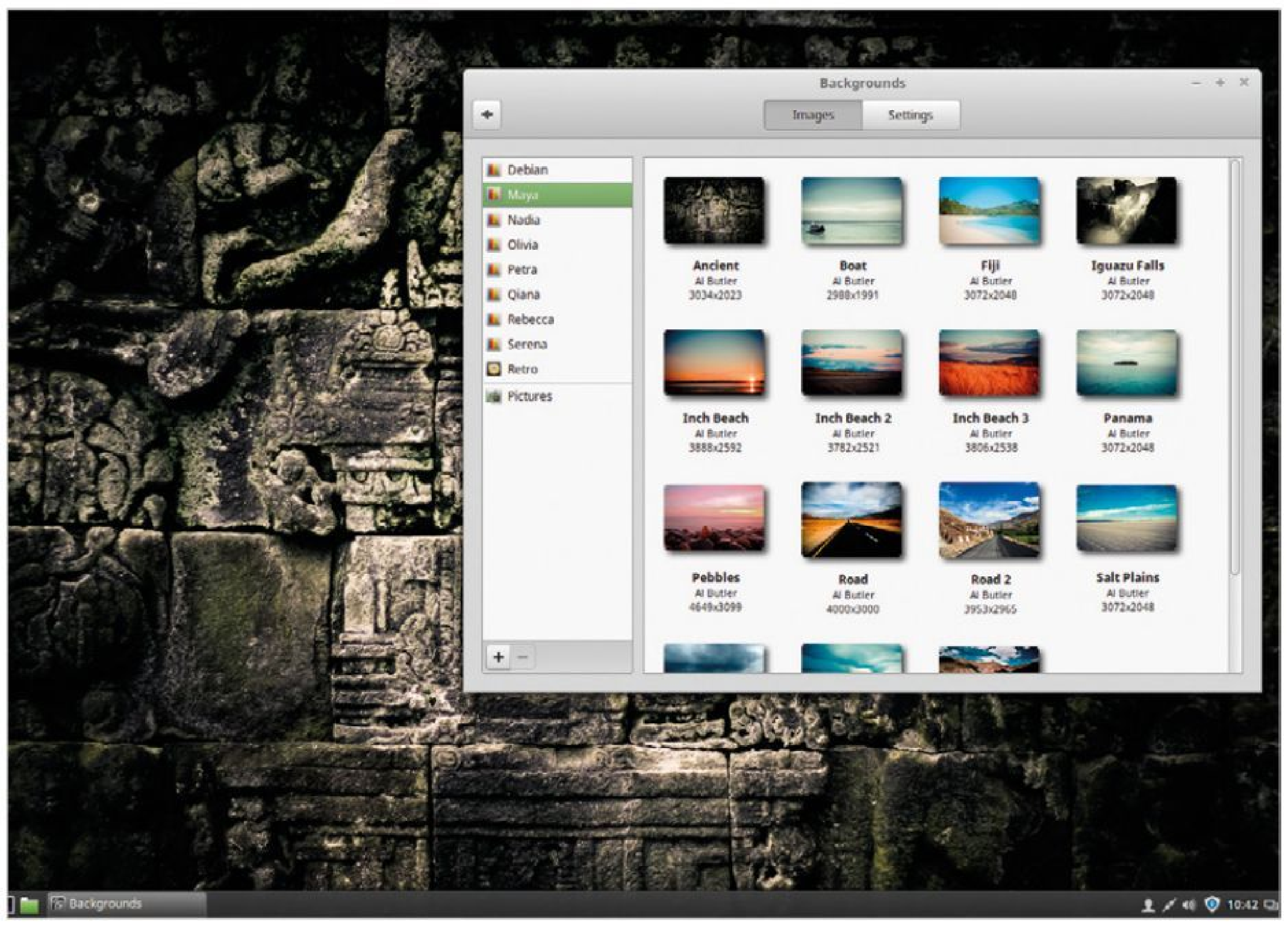
STEP 2 To keep in-line with the rest of the book, we're using the LMDE 2 64-bit Cinnamon version. Once you've downloaded and installed it, you are presented with a slightly different looking desktop to that of the mainstream versions of Linux Mint; although an update brings it in-line with the new Mint theme.


Computer
Home
Menu
[Welcome Screen]

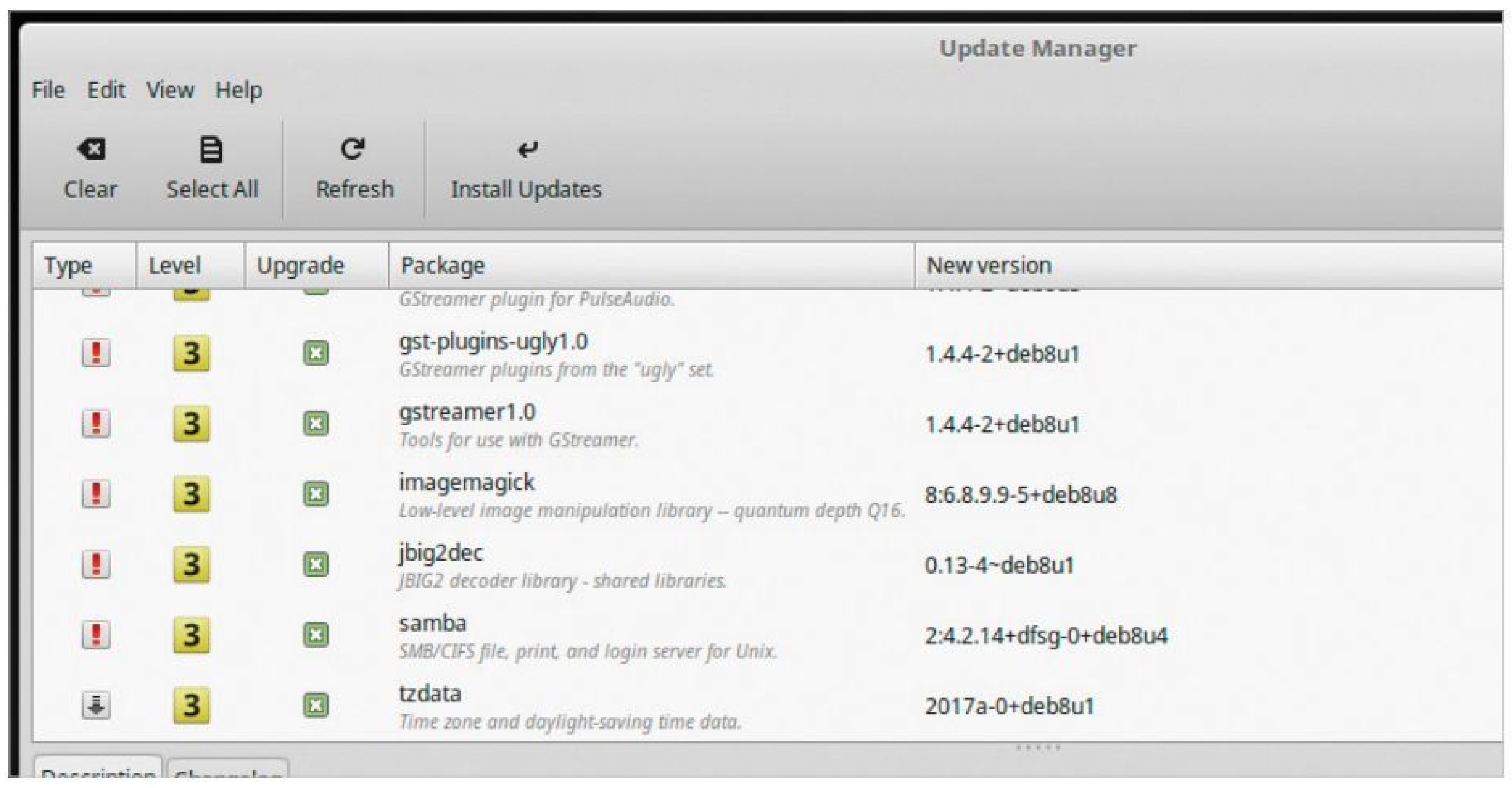
STEP 3 Quoting the Linux Mint site. "LMDE is less mainstream than Linux Mint, it has a much smaller user base, it is not compatible with PPAs and it lacks a few features. That makes it a bit harder to use and to find help for, so it is not recommended for novice users." Don't let that put you of, though.


Computer
Home
Backgrounds
Images
Settings
Debian
Maya
Nadia
Olivia
Petra
Qiana
Rebecca
Serena
Retro
Pictures
Ancient
Boat
Fiji
Iguazu Falls
Inch Beach
Inch Beach 2
Inch Beach 3
Panama
Pebbles
Road
Road 2
Salt Plains
All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Accessibility
Account details
Applets
Archive Manager
Backgrounds
Backup Tool
Banshee
Bluetooth
Brasero
Calculator
Character Map
Menu

STEP 4 Most of the features we've looked at throughout this book will work perfectly well with LMDE 2. Features such as changing the desktop look and feel; you even get more choice when it comes to default wallpapers.

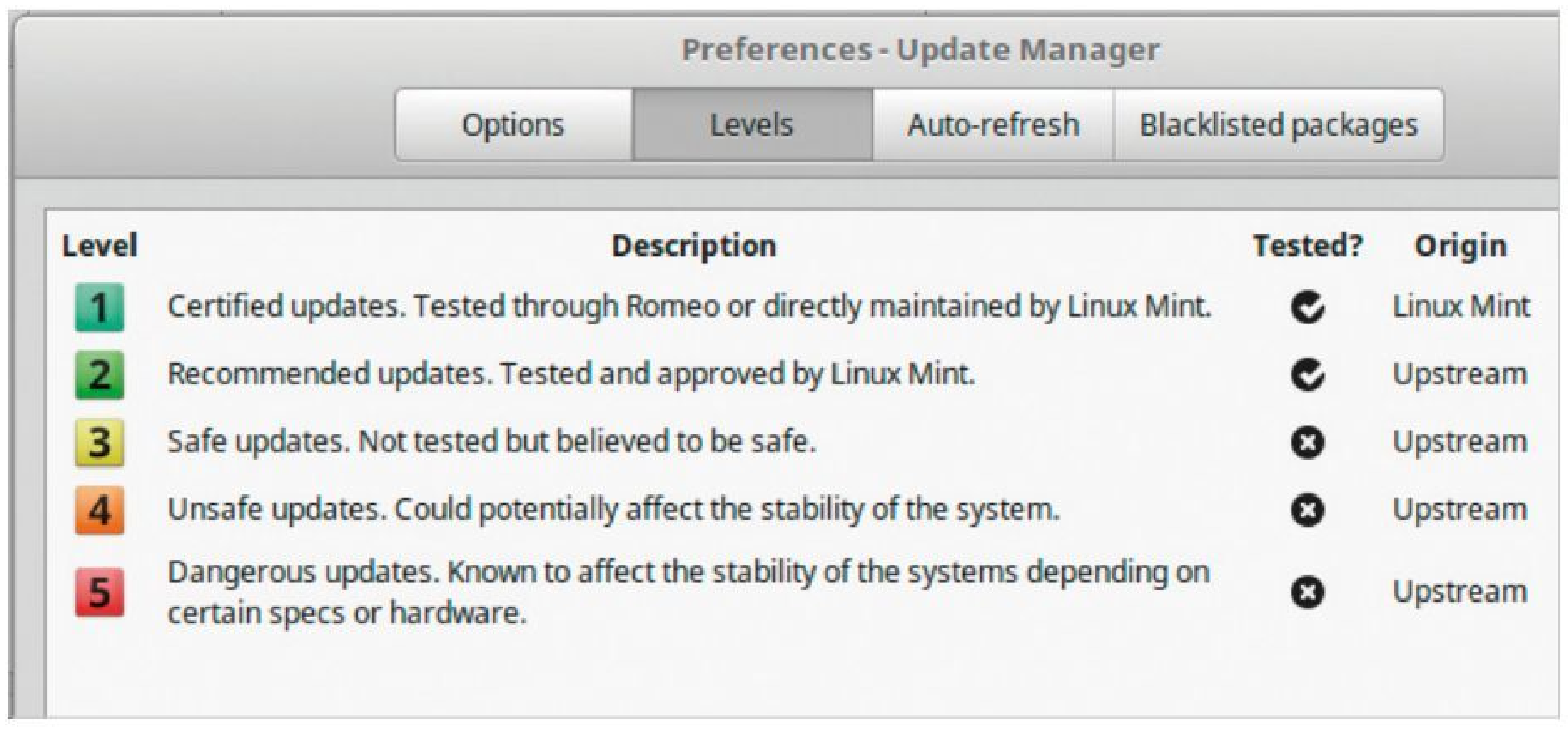

Backgrounds
Images
Settings
Debian
Maya
Nadia
Olivia
Petra
Qiana
Rebecca
Serena
Retro
Pictures
Ancient
Boat
Fiji
Iguazu Falls
Inch Beach
Inch Beach 2
Inch Beach 3
Panama
Pebbles
Road
Road 2
Salt Plains
Backgrounds
10:42

STEP 5 LMDE 2 is faster than the mainstream Linux Mint Cinnamon and its base packages are identical to that of the Cinnamon version we've been looking at within these pages. The only major differences are the continuous updates of the Mint and desktop components; and that newly developed features are instantly applied without waiting for a new mainstream Mint release.


Update Manager
File Edit View Help
Clear
Select All
Refresh
Install Updates

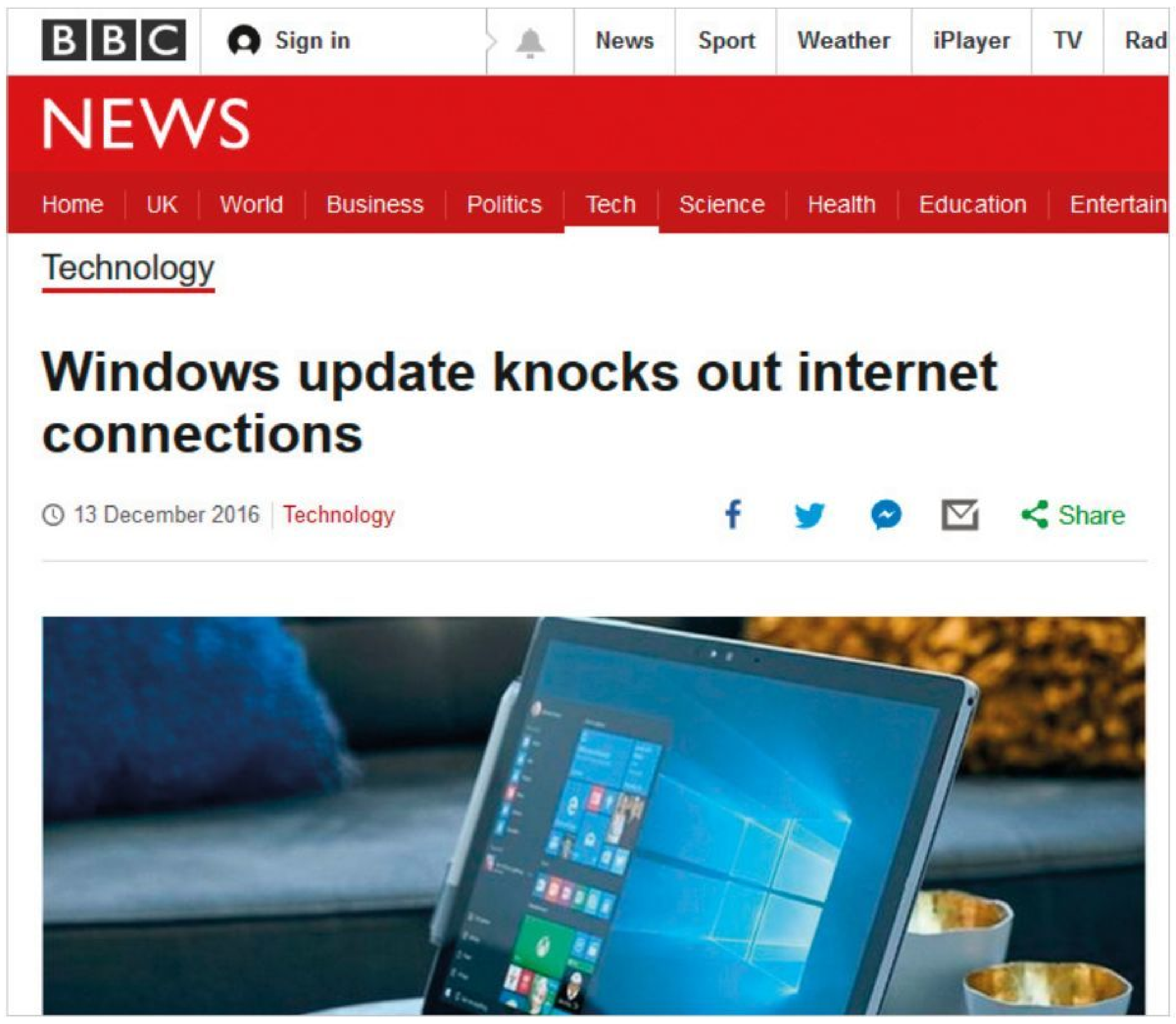
Type	Level	Upgrade	Package	New version
			GStreamer plugin for PulseAudio.	
!	3	☒	gst-plugins-ugly1.0 *GStreamer plugins from the "ugly" set.*	1.4.4-2+deb8u1
!	3	☒	gstreamer1.0 *Tools for use with GStreamer.*	1.4.4-2+deb8u1
!	3	☒	imagemagick *Low-level image manipulation library -- quantum depth Q16.*	8:6.8.9.9-5+deb8u8
!	3	☒	jbig2dec *JBIG2 decoder library - shared libraries.*	0.13-4~deb8u1
!	3	☒	samba *SMB/CIFS file, print, and login server for Unix.*	2:4.2.14+dfsg-0+deb8u4
⬇	3	☒	tzdata *Time zone and daylight-saving time data.*	2017a-0+deb8u1

STEP 6 This means that by using LMDE 2 you stay ahead of the release curve and will be the first to use and experience a new element. Naturally, this comes at a price: the potential for something to go wrong.


Preferences - Update Manager
Options
Levels
Auto-refresh
Blacklisted packages

Level	Description	Tested?	Origin
1	Certified updates. Tested through Romeo or directly maintained by Linux Mint.	✓	Linux Mint
2	Recommended updates. Tested and approved by Linux Mint.	✓	Upstream
3	Safe updates. Not tested but believed to be safe.	✗	Upstream
4	Unsafe updates. Could potentially affect the stability of the system.	✗	Upstream
5	Dangerous updates. Known to affect the stability of the systems depending on certain specs or hardware.	✗	Upstream

STEP 7 Having said that though, any update to an operating system, regardless of whether it's LMDE 2, macOS or Windows, has the potential to possible 'break' something on your system. Windows and macOS updates may not be as cutting edge as LMDE's, or Linux in general, but it's not unheard of for an update to stop something from working.

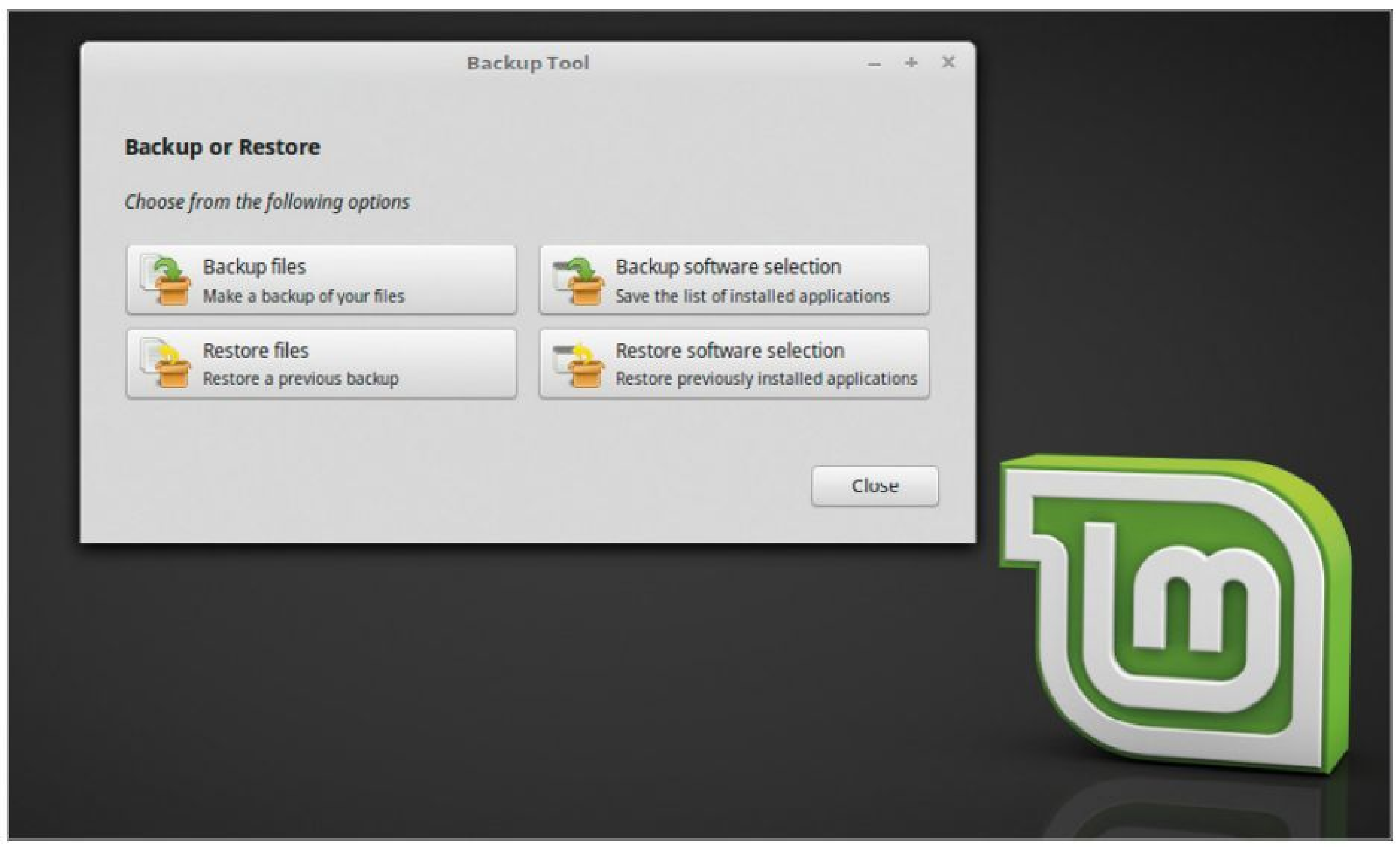

BBC
Sign in
News
Sport
Weather
iPlayer
TV
Rad
NEWS
Home
UK
World
Business
Politics
Tech
Science
Health
Education
Entertain
Share

Technology

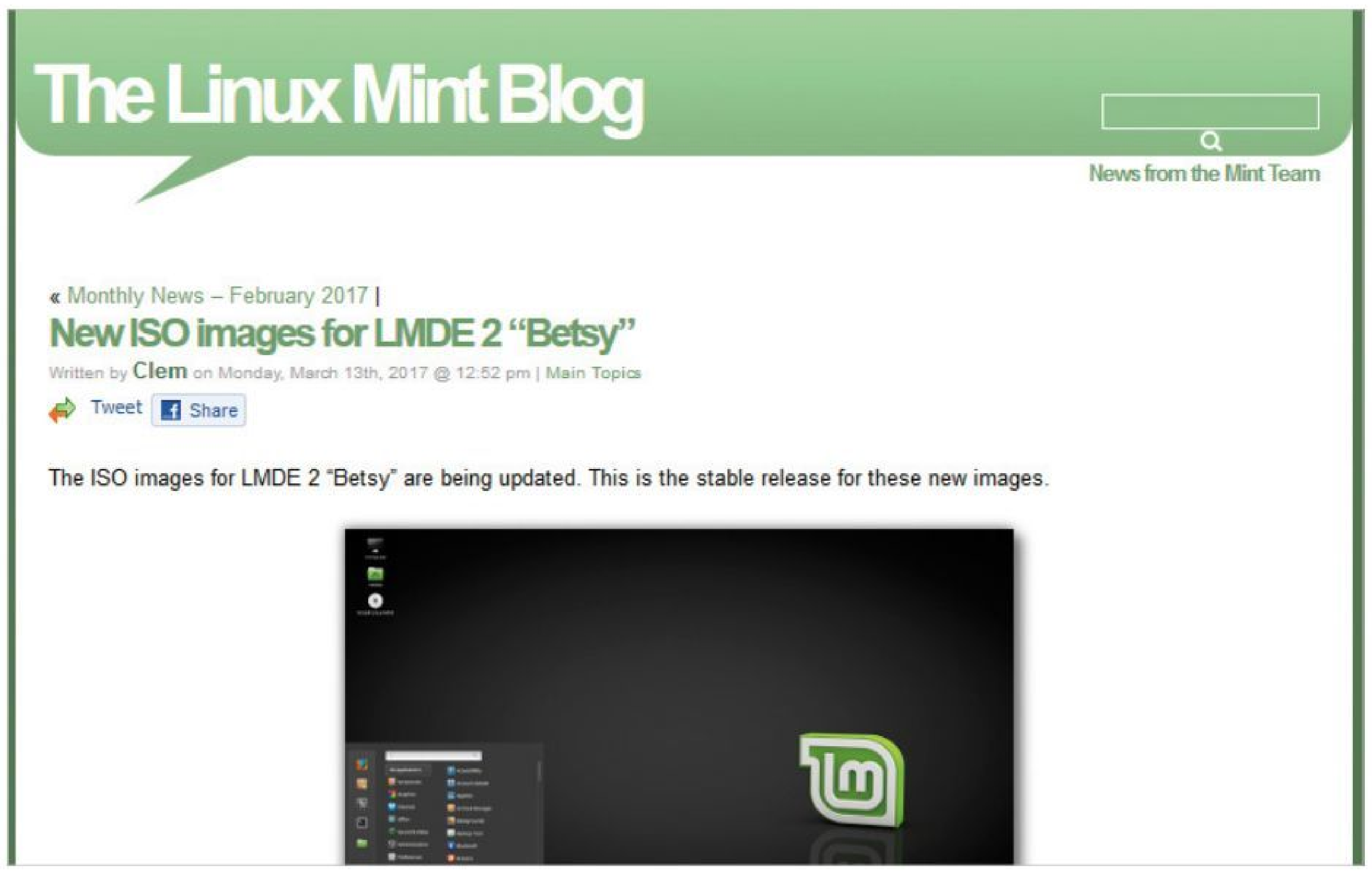
Windows update knocks out internet connections

13 December 2016 | Technology

STEP 8 It's always best then, to make sure that you regularly back up your work and any other data you deem important. Should something go wrong with LMDE 2, at least you have a good working copy of all your data to hand.


Backup Tool
Backup or Restore
Choose from the following options
Backup files
Make a backup of your files
Backup software selection
Save the list of installed applications
Restore files
Restore a previous backup
Restore software selection
Restore previously installed applications
Close

STEP 9 New ISO images for LMDE 2, codenamed Betsy, are regularly released; the version we used for this book was released on March 13th 2017. You won't need to download and install a new ISO though, if you're already using LMDE 2. You already access the updates included in the latest LMDE ISOs.

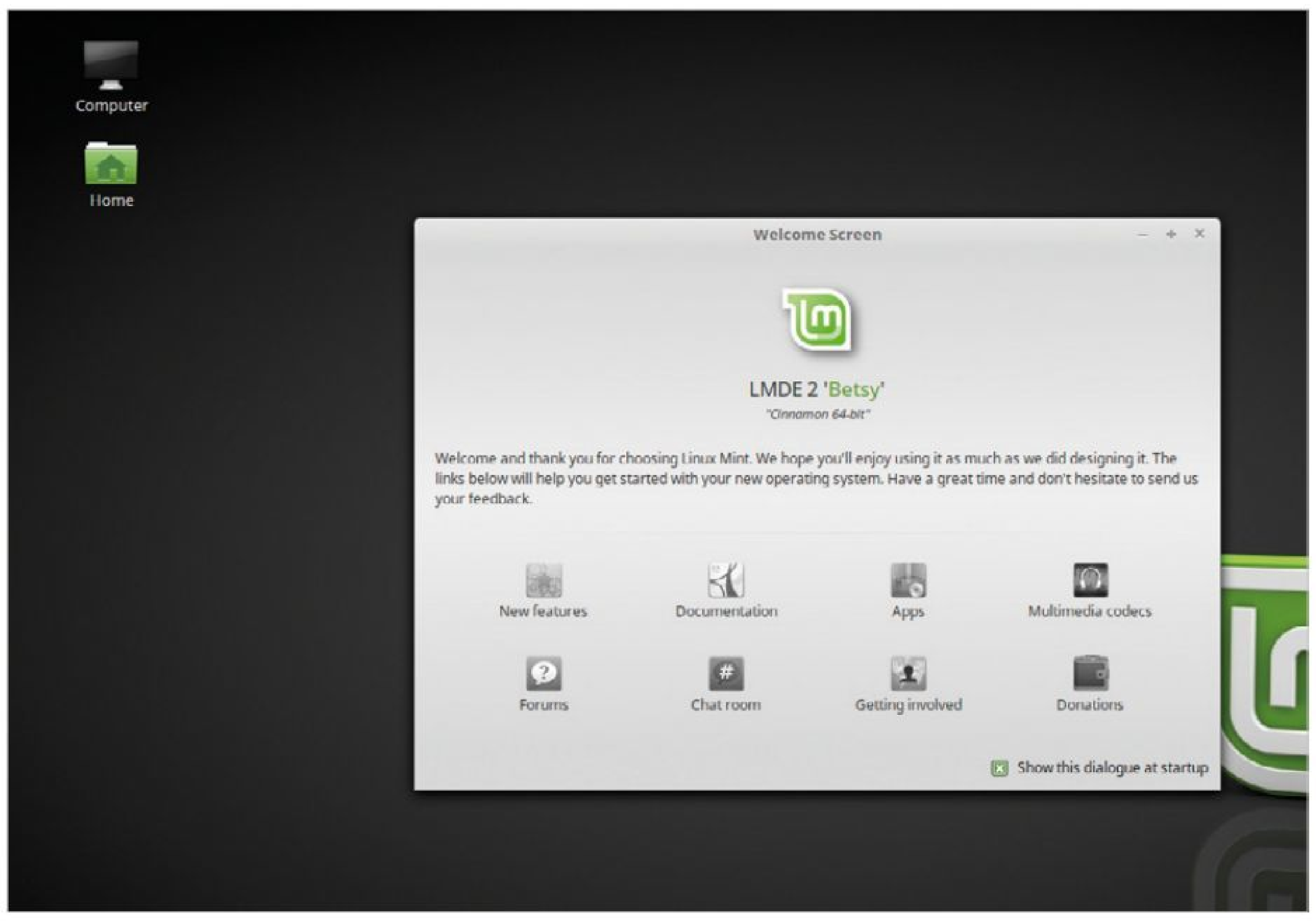

The Linux Mint Blog
News from the Mint Team
« Monthly News – February 2017 |
Tweet
Share

New ISO images for LMDE 2 "Betsy"

Written by Clem on Monday, March 13th, 2017 @ 12:52 pm | Main Topics

The ISO images for LMDE 2 "Betsy" are being updated. This is the stable release for these new images.

STEP 10 Providing you've backed up, you can easily roll back from any potential issue with the desktop; and if you take the time to learn a little about how Linux Mint works, check out the Mint forums etc., then LMDE 2 is a fantastic distro to experiment with and use on a daily basis.


Computer
Home
Welcome Screen
LMDE 2 'Betsy'
"Cinnamon 64-bit"
New features
Documentation
Apps
Multimedia codecs
Forums
Chat room
Getting involved
Donations
☒ Show this dialogue at startup

Welcome and thank you for choosing Linux Mint. We hope you'll enjoy using it as much as we did designing it. The links below will help you get started with your new operating system. Have a great time and don't hesitate to send us your feedback.

LMDE 2: Life on the Wild Side

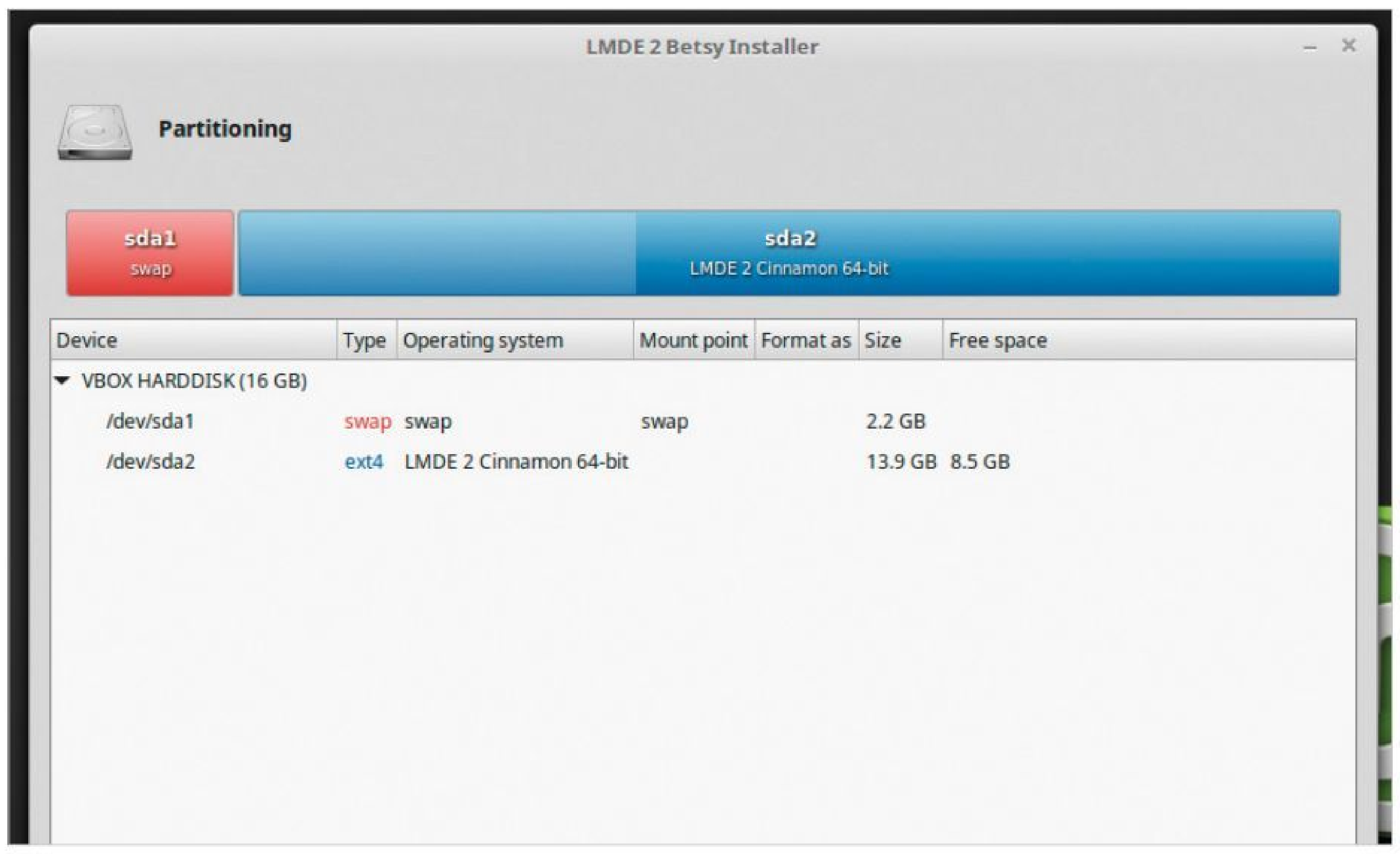
Before you make your decision to test or use LMDE 2, it's worth covering how it strays from the mainstream Mint versions we looked at in this book. LMDE is a superb desktop but it does differ, and those slight differences need consideration.

NOW FOR SOMETHING COMPLETELY DIFFERENT

LMDE 2's differences are what make it such a great choice. However, to the newcomer those differences can be a little daunting. Let's take a quick look at where LMDE 2 differs from what you've seen already

DIFFERENCE 1

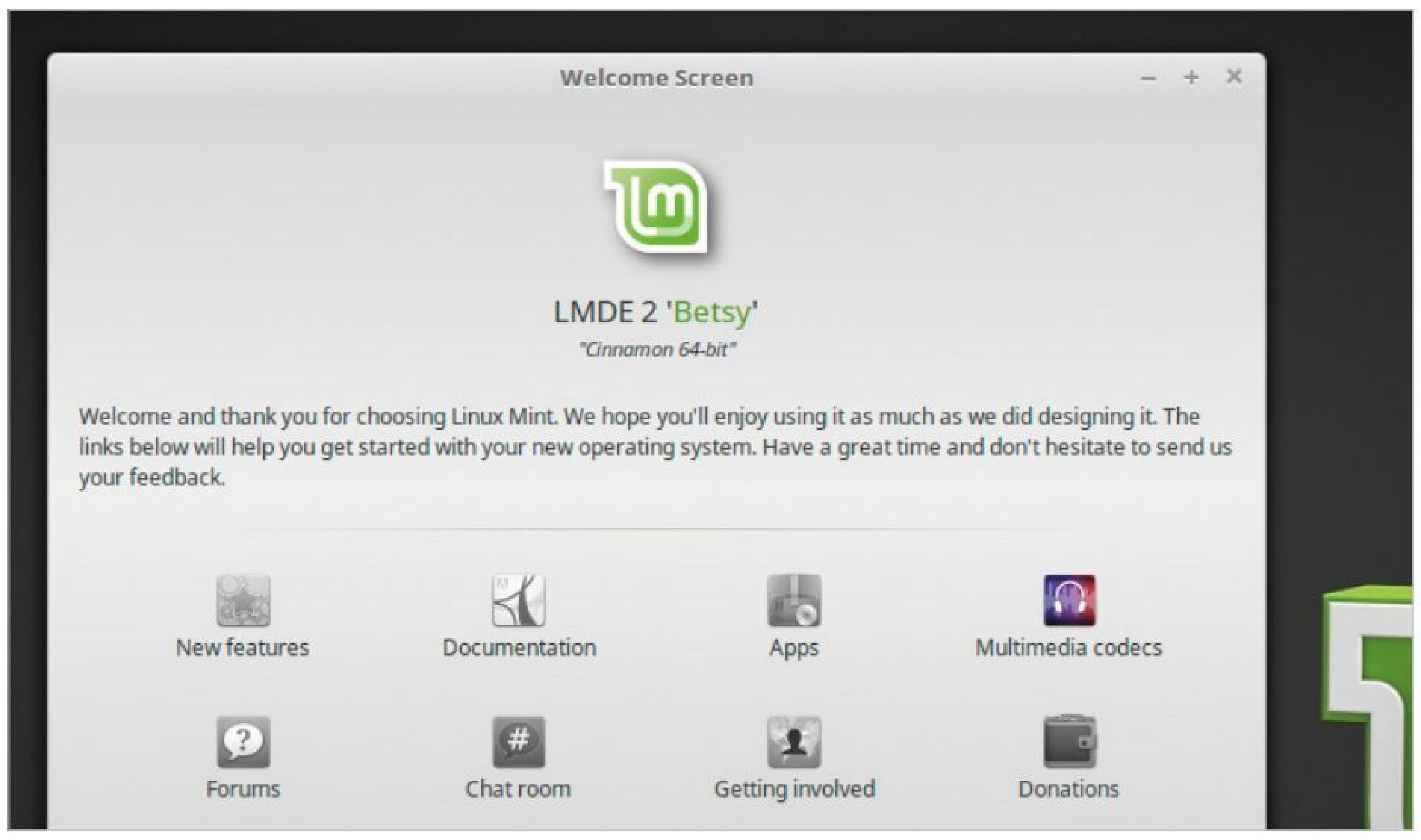
The first difference you come across is the installation routine. Not only does it look different but the partitioning of the hard drive may throw a new user. Thankfully, the Mint team has done a great job of simplifying it all. Just follow the on-screen instructions and you'll be okay.


LMDE 2 Betsy Installer
Partitioning
sda1
swap
sda2
LMDE 2 Cinnamon 64-bit

Device	Type	Operating system	Mount point	Format as	Size	Free space
VBOX HARDDISK (16 GB)						
/dev/sda1	swap	swap	swap		2.2 GB	
/dev/sda2	ext4	LMDE 2 Cinnamon 64-bit			13.9 GB	8.5 GB

DIFFERENCE 2

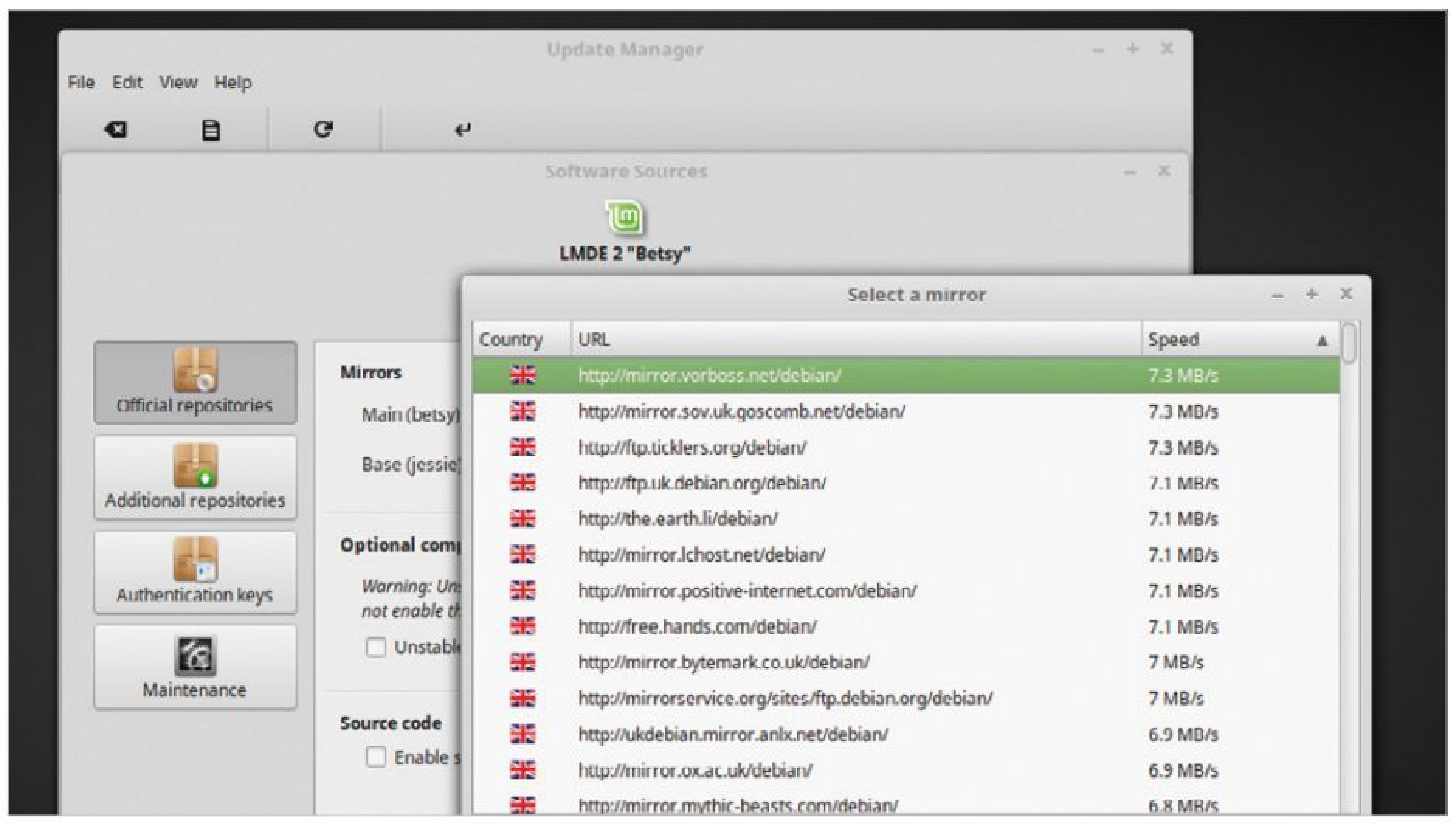
Another difference, post-installation, is the absence of the multimedia codecs that come shipped with Linux Mint mainstream versions. Normally, you are required to enter a few lines into the Terminal to get the latest packages but the Mint Team have included a Multimedia Codecs button to the Welcome Screen. Click this, follow the instructions and you're ready to go.


Welcome Screen
LMDE 2 'Betsy'
"Cinnamon 64-bit"
New features
Documentation
Apps
Multimedia codecs
Forums
Chat room
Getting involved
Donations

Welcome and thank you for choosing Linux Mint. We hope you'll enjoy using it as much as we did designing it. The links below will help you get started with your new operating system. Have a great time and don't hesitate to send us your feedback.

DIFFERENCE 3

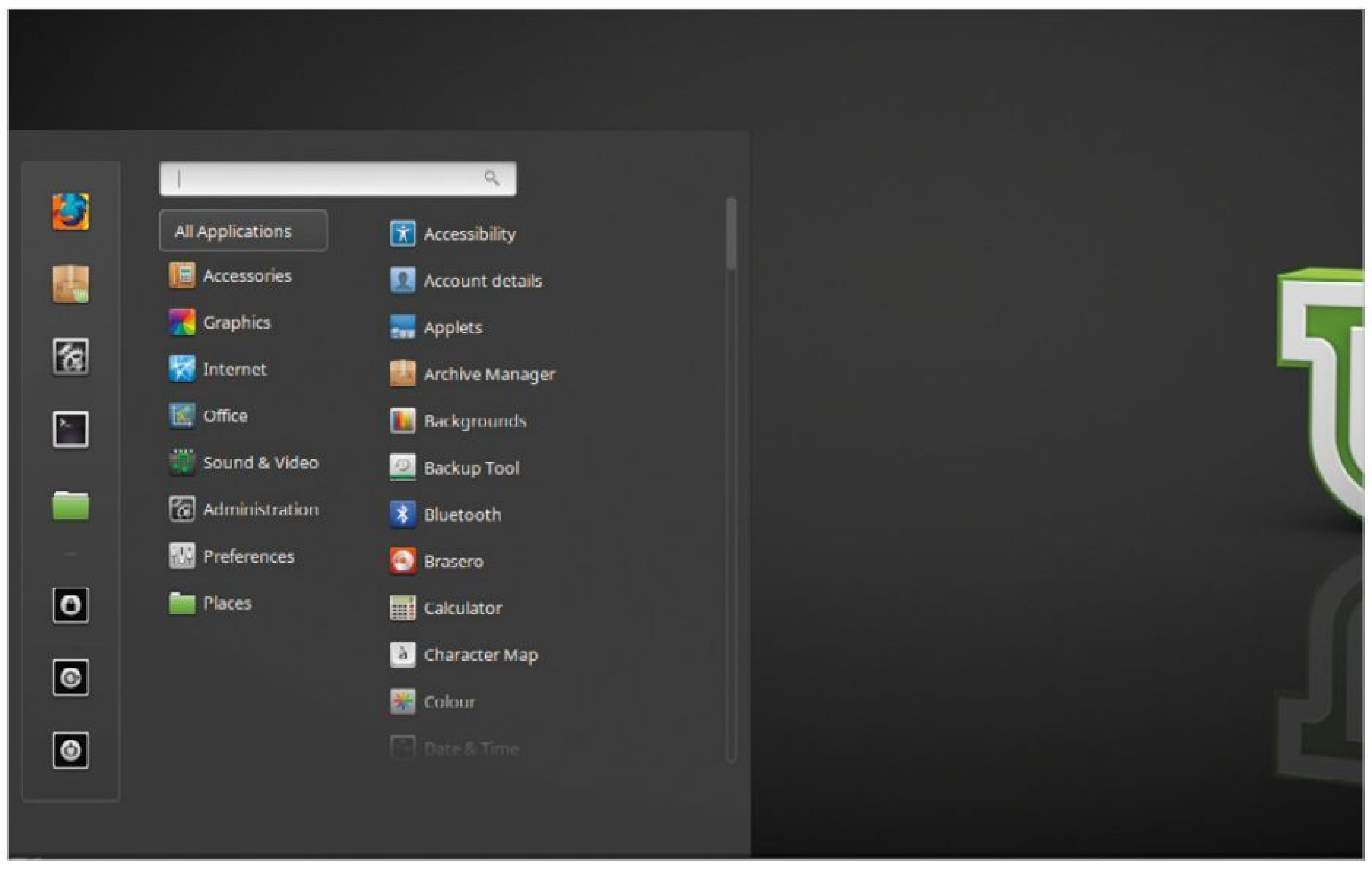
The update cycle has been mentioned a few times in this book, as well as within the main LMDE download page and in the LMDE 2 documentation, so we're not going over it again here. You still have the update policy in the Update Manager but you're now using the Debian package base, so expect some differences.


Update Manager
File
Edit
View
Help
Software Sources
LMDE 2 "Betsy"
Select a mirror
Official repositories
Additional repositories
Authentication keys
Maintenance
Mirrors
Main (betsy)
Base (jessie)
Optional com
Warning: Un
not enable th
☐ Unstabl
Source code
☐ Enable s

Country	URL	Speed
🇬🇧	http://mirror.vorboss.net/debian/	7.3 MB/s
🇬🇧	http://mirror.sov.uk.goscomb.net/debian/	7.3 MB/s
🇬🇧	http://ftp.ticklers.org/debian/	7.3 MB/s
🇬🇧	http://ftp.uk.debian.org/debian/	7.1 MB/s
🇬🇧	http://the.earth.li/debian/	7.1 MB/s
🇬🇧	http://mirror.lchost.net/debian/	7.1 MB/s
🇬🇧	http://mirror.positive-internet.com/debian/	7.1 MB/s
🇬🇧	http://free.hands.com/debian/	7.1 MB/s
🇬🇧	http://mirror.bytemark.co.uk/debian/	7 MB/s
🇬🇧	http://mirrorservice.org/sites/ftp.debian.org/debian/	7 MB/s
🇬🇧	http://ukdebian.mirror.anlx.net/debian/	6.9 MB/s
🇬🇧	http://mirror.ox.ac.uk/debian/	6.9 MB/s
🇬🇧	http://mirror.mythic-beasts.com/debian/	6.8 MB/s

DIFFERENCE 4

Of course, the major difference is the Cinnamon version and its more up-to-date, cutting edge packages. It's still an excellent choice of desktop environment and will continue to evolve as the team expand its feature set. On the whole, although slightly different from the mainstream, LMDE 2 is certainly worth installing.


All Applications
Accessories
Graphics
Internet
Office
Sound & Video
Administration
Preferences
Places
Accessibility
Account details
Applets
Archive Manager
Backgrounds
Backup Tool
Bluetooth
Brasero
Calculator
Character Map
Colour
Date & Time

THE IDEAL WORLD SETUP

It's all fine and well mentioning the benefits to using LMDE 2 but what about actually using it in a real-world situation? What's the best approach and is it really going to cost you more time and effort to keep it maintained?

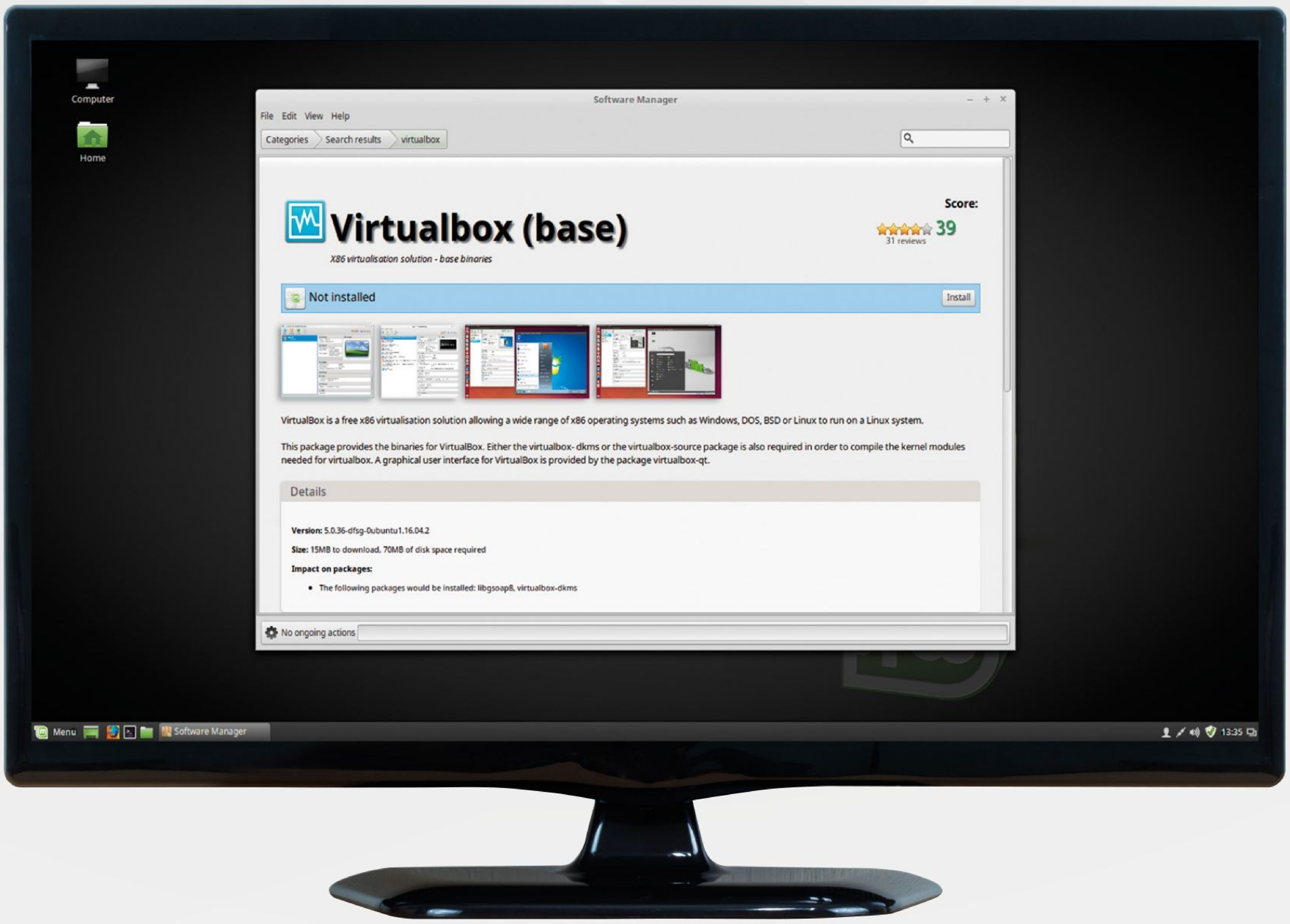
LMDE 2 works like a charm, most of the time. We've come across an issue three or four times during our time with it when developing this book. These issues were, thankfully, easily overcome and didn't require much in the way of virtual footwork on the Internet to fathom out and fix. That's not to say you'll have the same experience.

Modern computers and their operating systems are fickle things indeed. Where LMDE will work solidly and without issue for many months on one system, on another you may find yourself in a constant spiral of fix, update, fix, maintain, update, fix and so on.

We've experienced cycles like this, and believe us when we say it isn't fun; mind you, you learn a lot about how an operating system works under such circumstances.

Therefore, and this is simply our recommendation, we suggest you install one of the more mainstream versions of Mint: Cinnamon, MATE etc. Then, following a successful installation, update and configuration, you then install Virtualbox within Mint. From there you can install LMDE 2 into a virtual environment, under Mint itself, and experience the best of both worlds.

As we said, that's just our suggestion. If you don't fancy doing that and you want to go for an LMDE 2 installation on your PC, then we salute you and hope it all goes well.



Virtualbox (base)

X86 virtualisation solution - base binaries

Score: 39

31 reviews

Not installed

VirtualBox is a free x86 virtualisation solution allowing a wide range of x86 operating systems such as Windows, DOS, BSD or Linux to run on a Linux system.

This package provides the binaries for VirtualBox. Either the virtualbox- dkms or the virtualbox-source package is also required in order to compile the kernel modules needed for virtualbox. A graphical user interface for VirtualBox is provided by the package virtualbox-qt.

Details

Version: 5.0.36-dfsg-0ubuntu1.16.04.2

Size: 15MB to download, 70MB of disk space required

Impact on packages:

- The following packages would be installed: libgsoap8, virtualbox-dkms

No ongoing actions

Linux Mint Projects

There's a lot more you can do with Linux Mint on your computer as well as using it as a standard desktop. We've already seen throughout this book that Mint is such a versatile operating system and with little effort it can accomplish great things.

LINUX MINT: ABOVE AND BEYOND THE DESKTOP

Let's take a moment to introduce some potential project ideas you can achieve with Linux Mint as the base operating system. Due to its versatility, there's plenty to get to grips with.

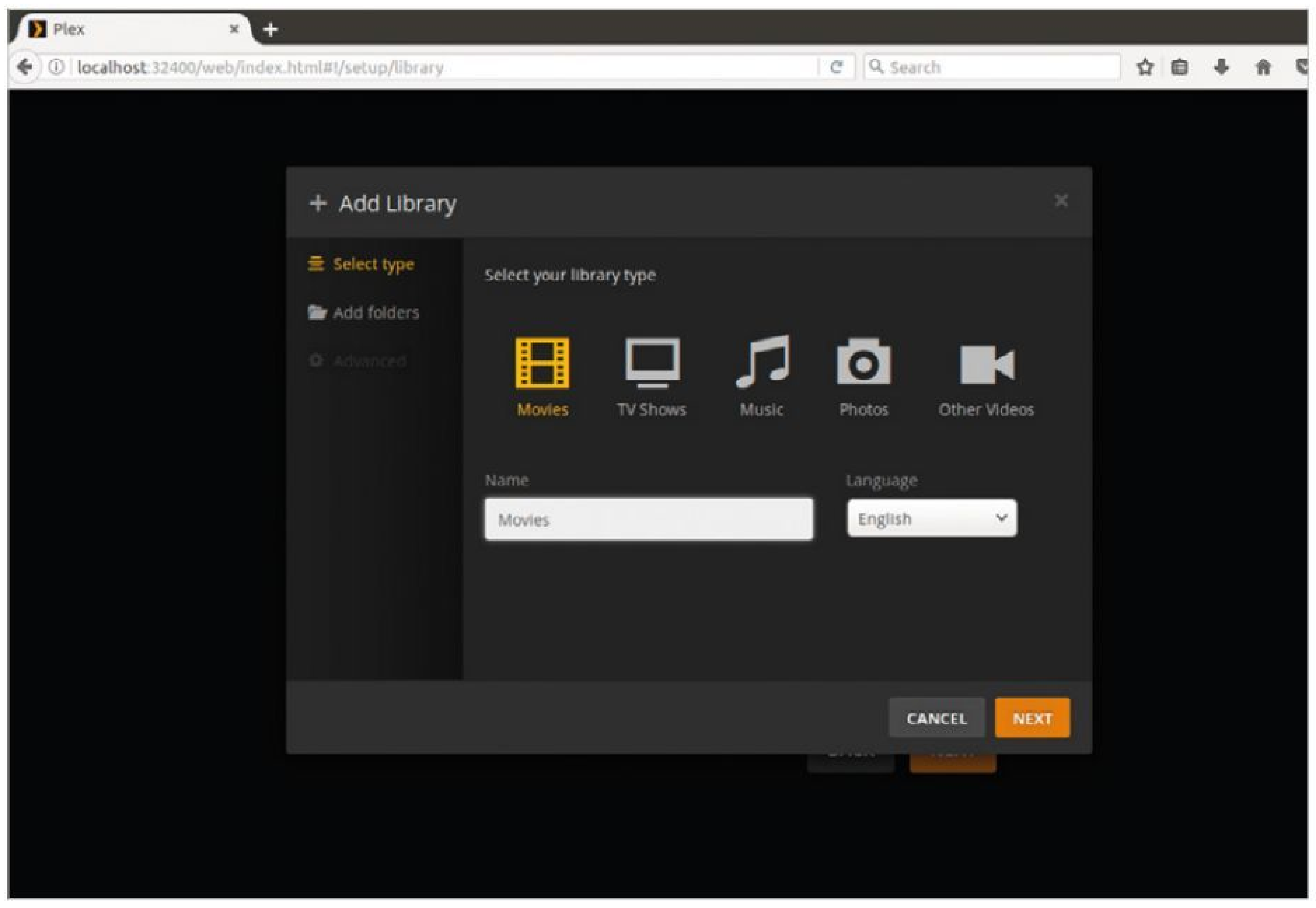
PROJECT 1

A Linux Mint installation makes for a great living room media PC. With the right apps installed, Mint can play virtually every form of media file available on the Internet today; and, if you have the right PC case, such as a MINIX NGC-1, you can even create a tiny but powerful media setup.

MINIX
HDMI
SPDIF
12V DCIN

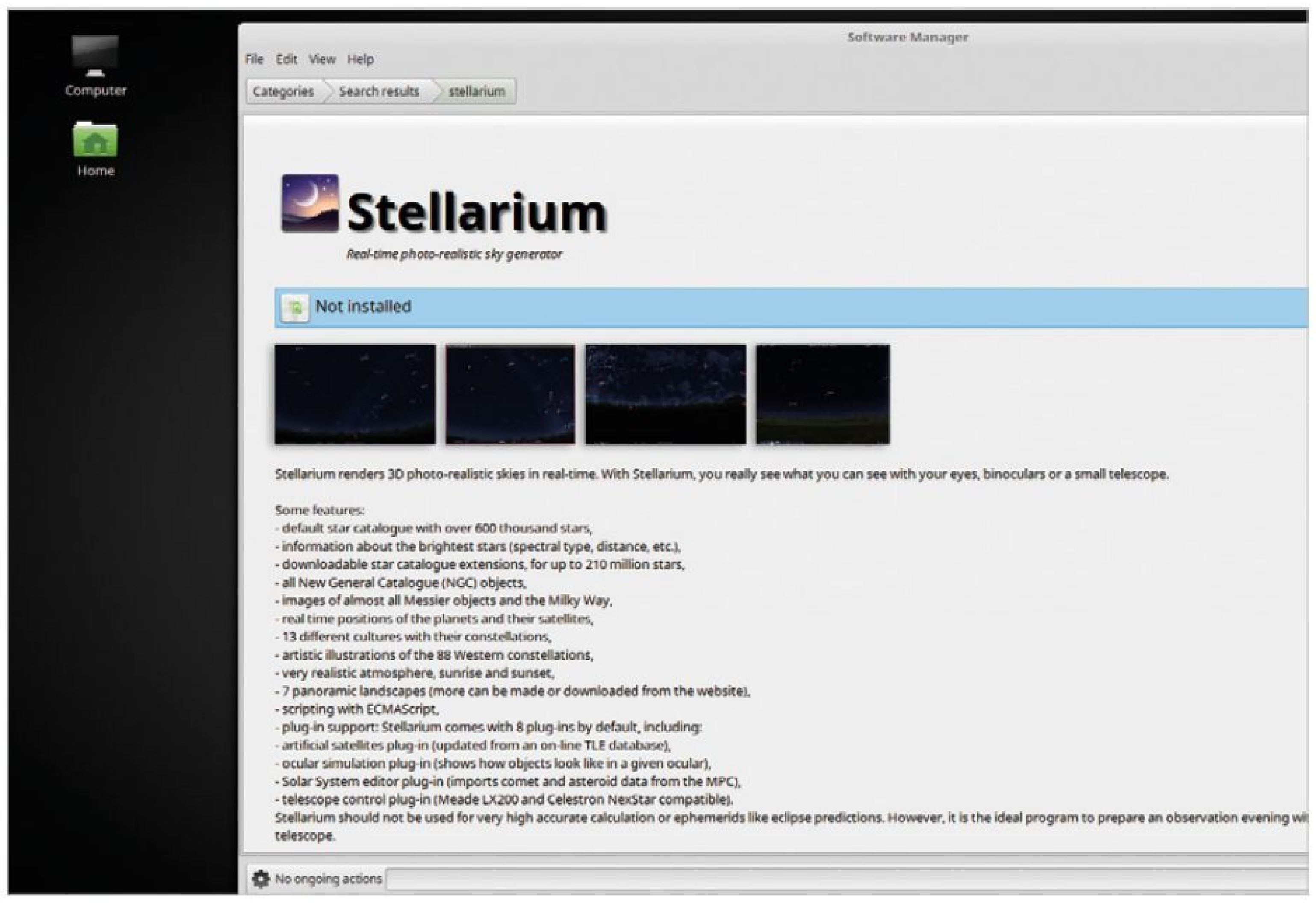
PROJECT 2

While we're still on the subject of supporting media, why not install Plex. Plex is a media server app that's web-based and easily installed on Mint. With it you're able to host and serve your film, music and photo albums to all the computers on your home network; and with a little work, even outside the home network.


Plex
localhost:32400/web/index.html#!/setup/library
Search
+ Add Library
Select type
Add folders
Advanced
Select your library type
Movies
TV Shows
Music
Photos
Other Videos
Name
Movies
Language
English
CANCEL
NEXT

PROJECT 3

For those of you who enjoy looking up at the night sky, Linux Mint can be used to activate and control a GoTo telescope. Working with the Stellarium program, your Mint system can be hooked up to a compatible GoTo telescope and control its motor. Why not go a step further and create your own back garden observatory?


Software Manager
File
Edit
View
Help
Categories
Search results
stellarium
Computer
Home
Stellarium
Real-time photo-realistic sky generator
Not installed
No ongoing actions

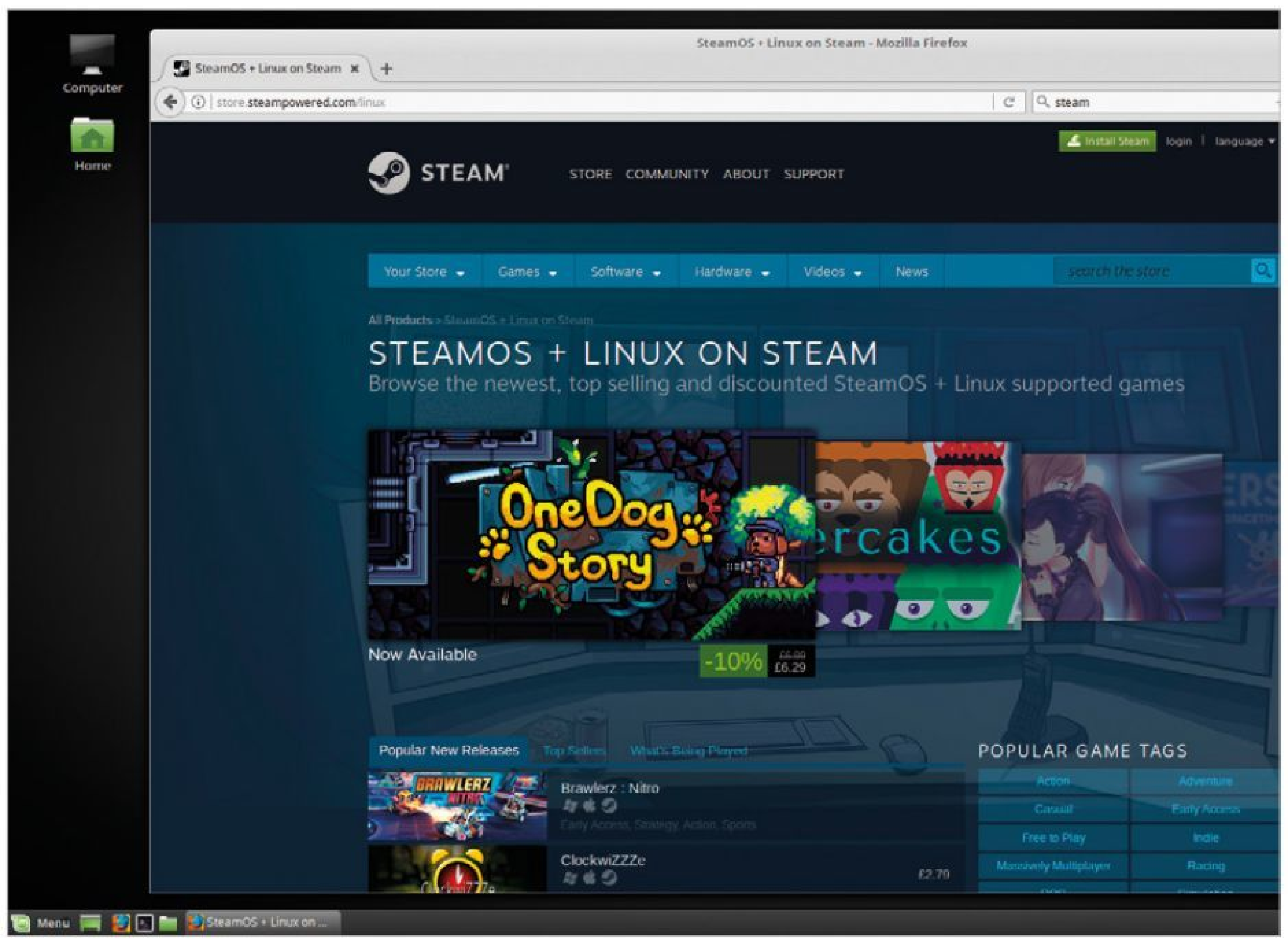
Stellarium renders 3D photo-realistic skies in real-time. With Stellarium, you really see what you can see with your eyes, binoculars or a small telescope.

Some features:
- default star catalogue with over 600 thousand stars,
- information about the brightest stars (spectral type, distance, etc.),
- downloadable star catalogue extensions, for up to 210 million stars,
- all New General Catalogue (NGC) objects,
- images of almost all Messier objects and the Milky Way,
- real time positions of the planets and their satellites,
- 13 different cultures with their constellations,
- artistic illustrations of the 88 Western constellations,
- very realistic atmosphere, sunrise and sunset,
- 7 panoramic landscapes (more can be made or downloaded from the website),
- scripting with ECMAScript,
- plug-in support: Stellarium comes with 8 plug-ins by default, including:
- artificial satellites plug-in (updated from an on-line TLE database),
- ocular simulation plug-in (shows how objects look like in a given ocular),
- Solar System editor plug-in (imports comet and asteroid data from the MPC),
- telescope control plug-in (Meade LX200 and Celestron NexStar compatible).

Stellarium should not be used for very high accurate calculation or ephemerids like eclipse predictions. However, it is the ideal program to prepare an observation evening wi
telescope.

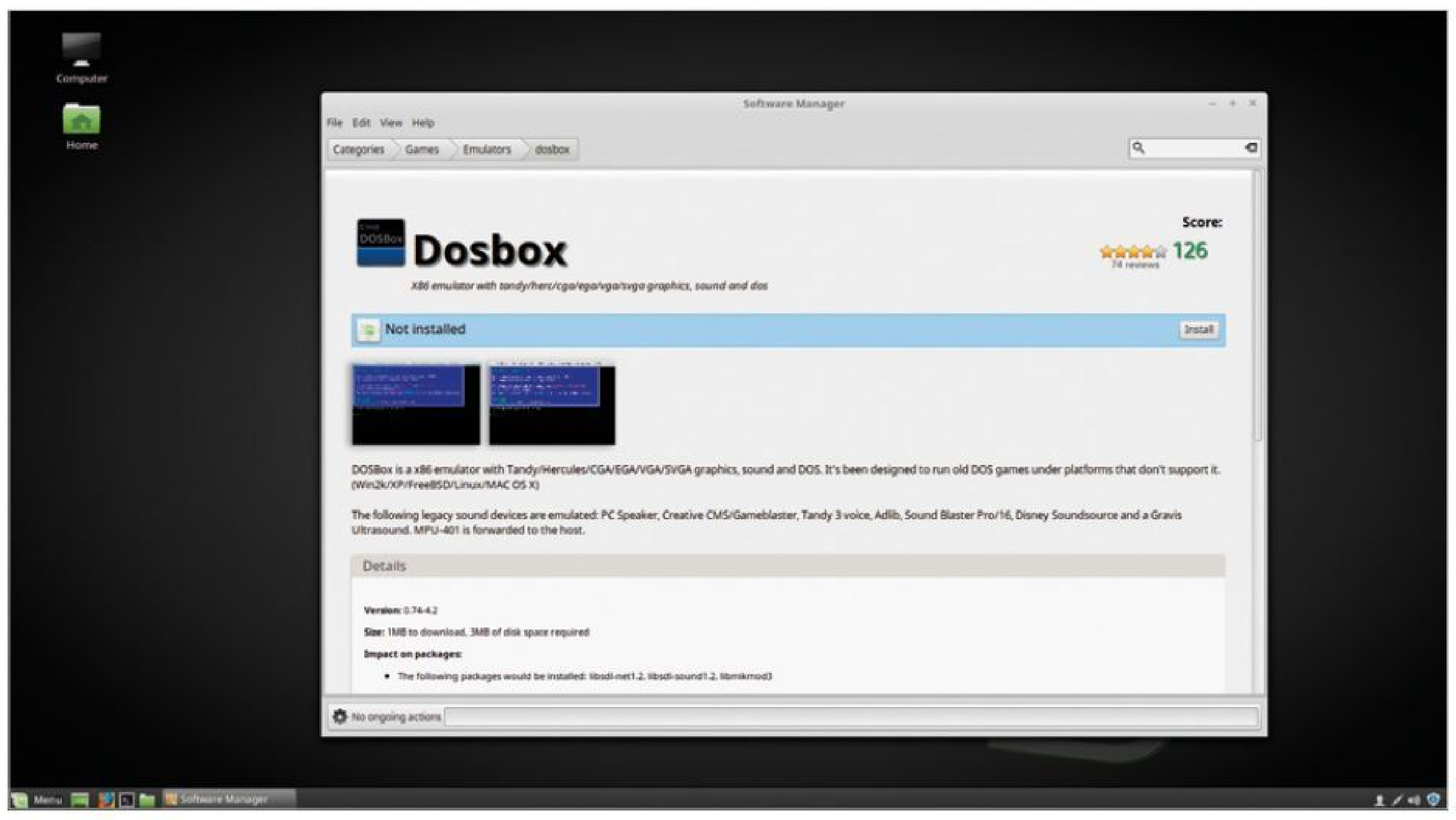
PROJECT 4

Many users consider Linux as a serious operating system but they'd be shocked at the vast number of modern gaming titles that are available for it. As Linux Mint is based on Ubuntu, there's a huge range of games from numerous sources. Install Steam, for example, and check out the thousands of great titles.


SteamOS + Linux on Steam - Mozilla Firefox
store.steampowered.com/linux
steam
Computer
Home
Install Steam
login
language
STEAM
STORE
COMMUNITY
ABOUT
SUPPORT
Your Store
Games
Software
Hardware
Videos
News
STEAMOS + LINUX ON STEAM
Browse the newest, top selling and discounted SteamOS + Linux supported games
One Dog Story
Now Available
-10%
£6.29
Popular New Releases
Top Sellers
POPULAR GAME TAGS
Brawlerz : Nitro
ClockwiZZZe
Menu

PROJECT 5

If modern gaming isn't your cup of tea, then how about using Mint as the base for a retro gaming system? There are numerous emulators available from the Software Manager and thousands more on the Internet. Hunt out that old game you can't play anymore on a modern PC, and enjoy.



Dosbox

X86 emulator with tandy/herc/cga/ega/vga/svga graphics, sound and dos

Score: 126 (74 reviews)

Not installed

DOSBox is a x86 emulator with Tandy/Hercules/CGA/EGA/VGA/SVGA graphics, sound and DOS. It's been designed to run old DOS games under platforms that don't support it. (Win2k/XP/FreeBSD/Linux/MAC OS X)

The following legacy sound devices are emulated: PC Speaker, Creative CMS/Gameblaster, Tandy 3 voice, Adlib, Sound Blaster Pro/16, Disney Soundsource and a Gravis Ultrasound. MPU-401 is forwarded to the host.

Details

Version: 0.74-4.2

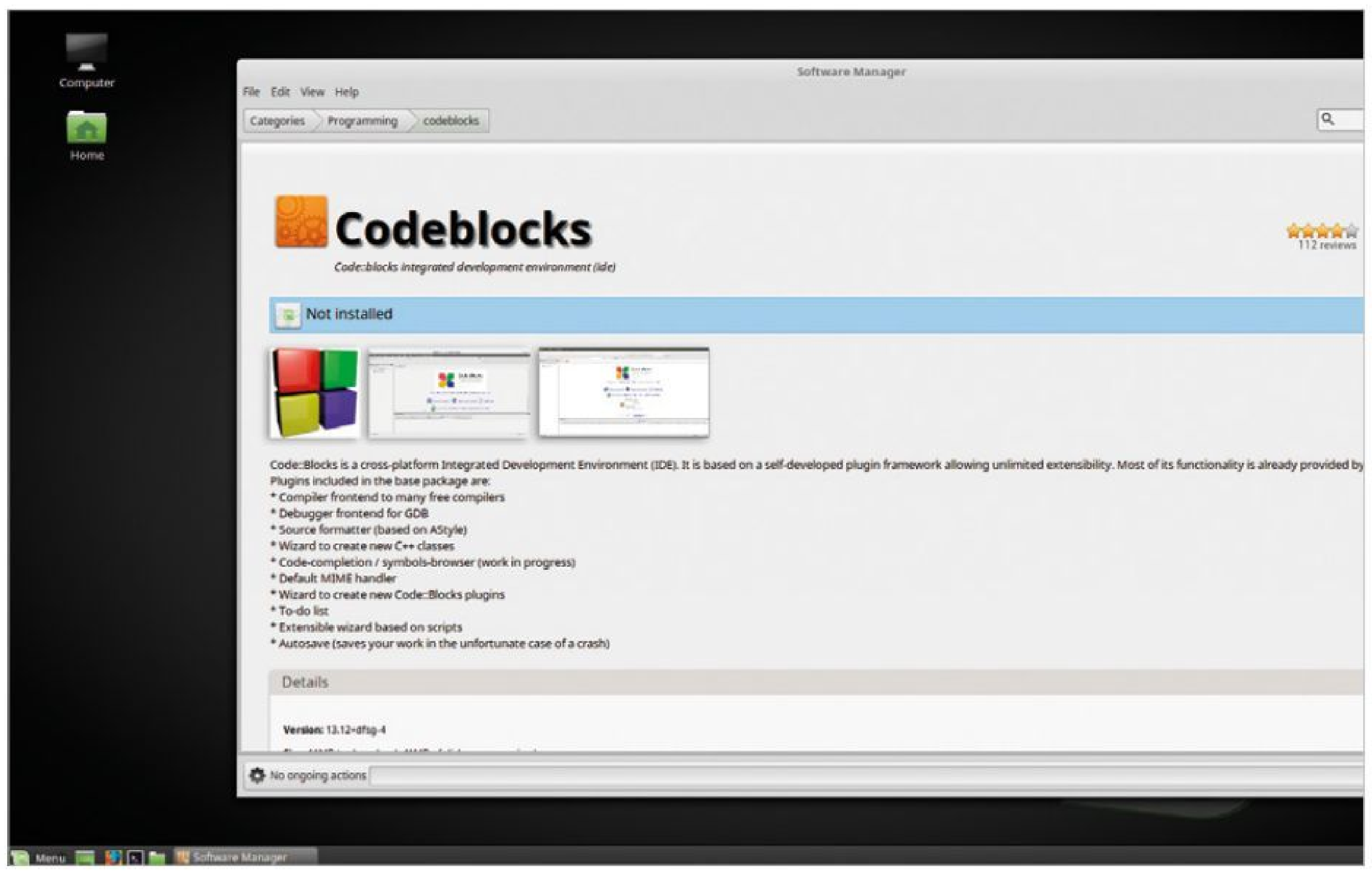
Size: 1MB to download, 3MB of disk space required

Impact on packages:

- The following packages would be installed: libsdl-net1.2, libsdl-sound1.2, libmikmod3

PROJECT 6

If you fancy getting your teeth into something a little more meaty, then how about a Mint programming system? There's over seven thousand programming applications available via the Software Manager and countless more online.



Codeblocks

Code::blocks integrated development environment (ide)

112 reviews

Not installed

Code::Blocks is a cross-platform Integrated Development Environment (IDE). It is based on a self-developed plugin framework allowing unlimited extensibility. Most of its functionality is already provided by

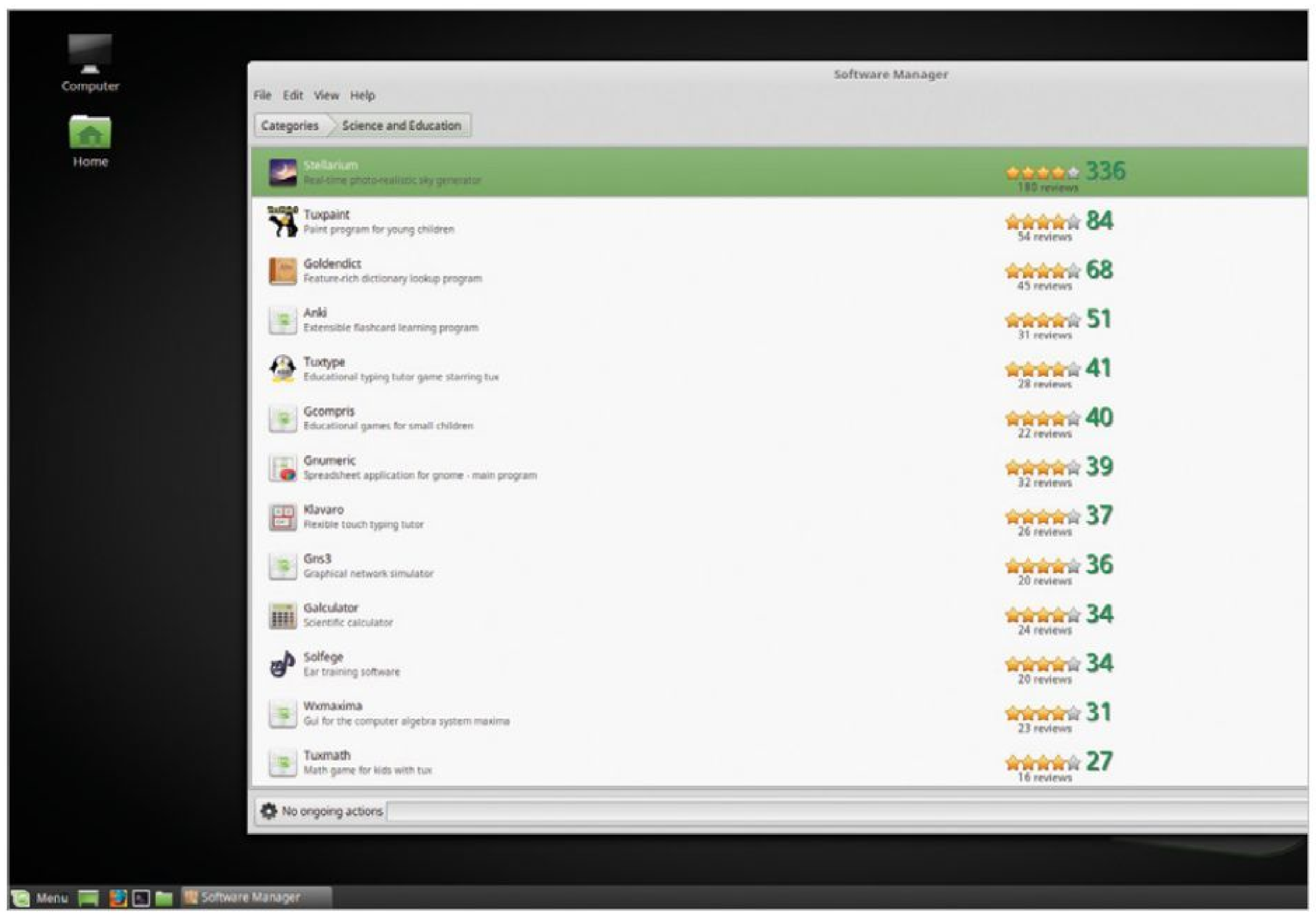
Plugins included in the base package are:
* Compiler frontend to many free compilers
* Debugger frontend for GDB
* Source formatter (based on AStyle)
* Wizard to create new C++ classes
* Code-completion / symbols-browser (work in progress)
* Default MIME handler
* Wizard to create new Code::Blocks plugins
* To-do list
* Extensible wizard based on scripts
* Autosave (saves your work in the unfortunate case of a crash)

Details

Version: 13.12+dfsg-4

PROJECT 7

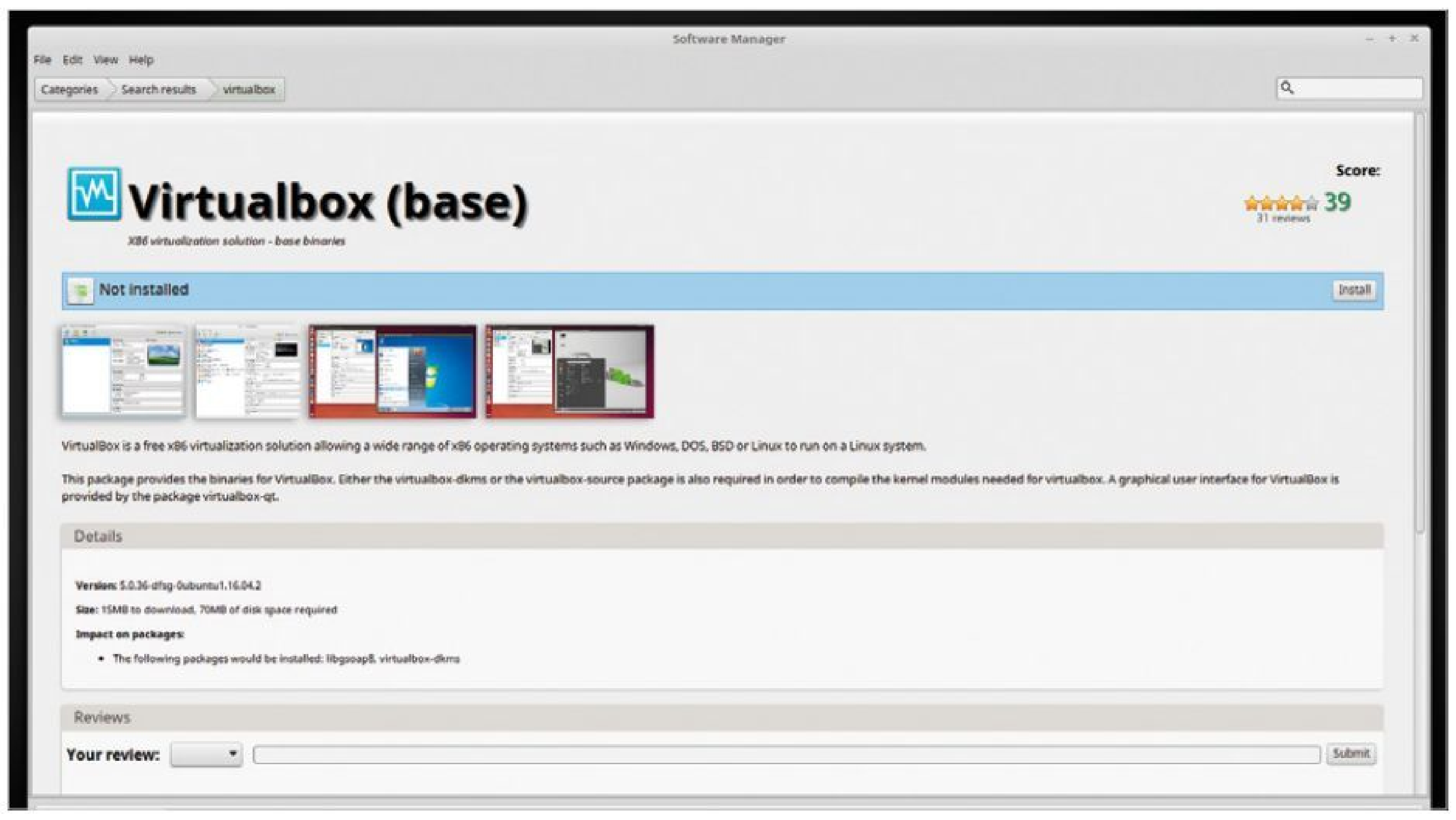
If you're on the hunt for an operating system that can help with your child's education, then look to Linux Mint. With well over two and a half thousand educational titles available, you can help your child with their education, from preschool all the way up to university level.



Stellarium Real-time photo-realistic sky generator	336	180 reviews
Tuxpaint Paint program for young children	84	54 reviews
Goldendict Feature-rich dictionary lookup program	68	45 reviews
Anki Extensible flashcard learning program	51	31 reviews
Tuxtype Educational typing tutor game starring tux	41	28 reviews
Gcompris Educational games for small children	40	22 reviews
Gnumeric Spreadsheet application for gnome - main program	39	32 reviews
Klavaro Flexible touch typing tutor	37	26 reviews
Gns3 Graphical network simulator	36	20 reviews
Galculator Scientific calculator	34	24 reviews
Solfege Ear training software	34	20 reviews
Wxmaxima Gui for the computer algebra system maxima	31	23 reviews
Tuxmath Math game for kids with tux	27	16 reviews

PROJECT 8

We have mentioned with regards to LMDE 2, installing Oracle's Virtualbox within Linux Mint and from there installing other Linux distributions, Windows operating systems or even Mac operating systems. That's definitely getting the best of both worlds.



Virtualbox (base)

X86 virtualization solution - base binaries

Score: 39 (31 reviews)

Not installed

VirtualBox is a free x86 virtualization solution allowing a wide range of x86 operating systems such as Windows, DOS, BSD or Linux to run on a Linux system.

This package provides the binaries for VirtualBox. Either the virtualbox-dkms or the virtualbox-source package is also required in order to compile the kernel modules needed for virtualbox. A graphical user interface for VirtualBox is provided by the package virtualbox-qt.

Details

Version: 5.0.36-dfsg-0ubuntu1.16.04.2

Size: 15MB to download, 70MB of disk space required

Impact on packages:

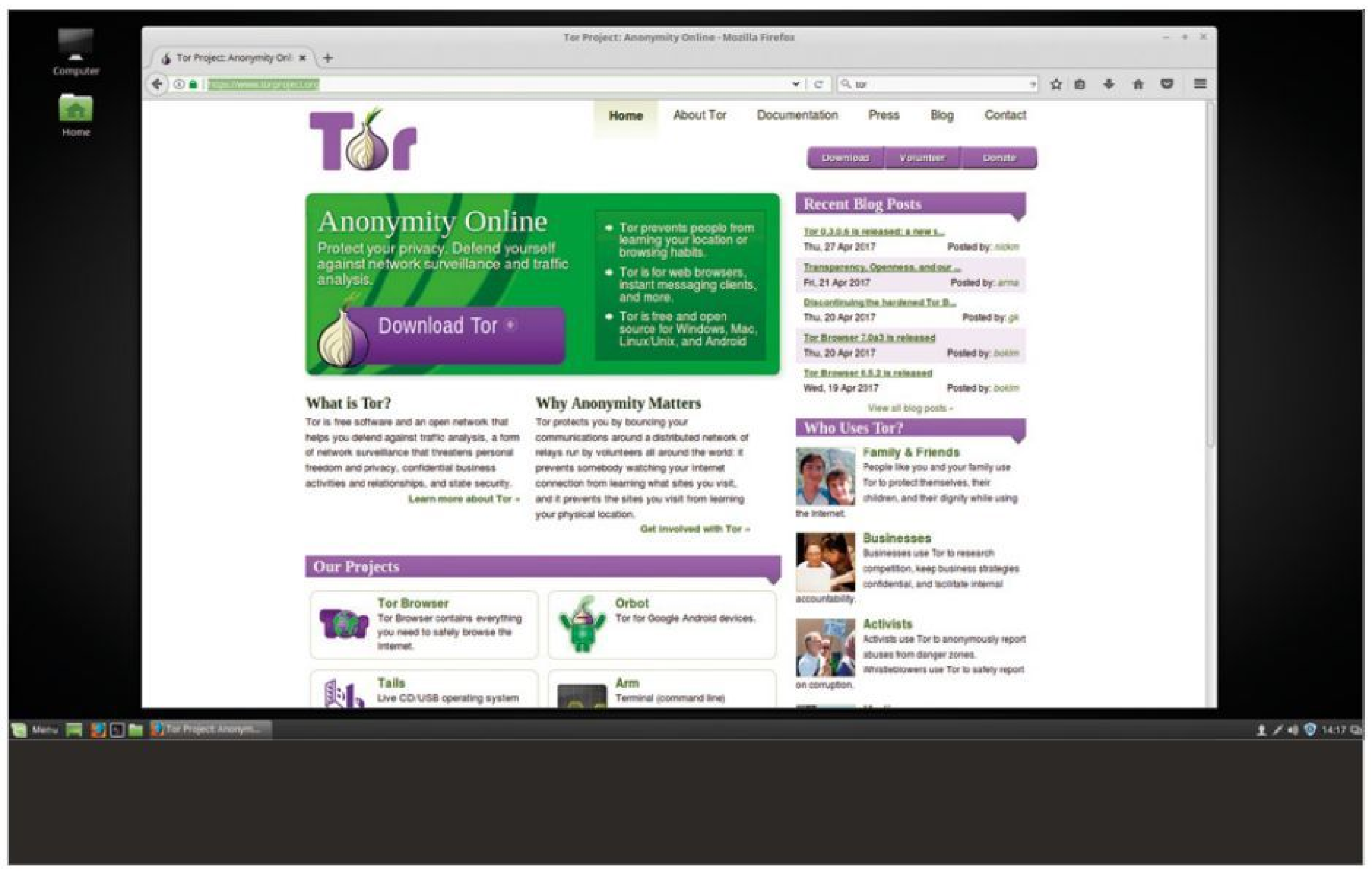
- The following packages would be installed: libgsoap8, virtualbox-dkms

Reviews

Your review:

PROJECT 9

If you're concerned about your anonymity whilst online, especially in this day and age, then use Linux Mint and the Tor project. With Tor your computer will be hidden from prying eyes, hackers and those who want to learn your browsing habits. You can find it at www.torproject.org, just follow the online instructions.



Anonymity Online

Protect your privacy. Defend yourself against network surveillance and traffic analysis.

- Tor prevents people from learning your location or browsing habits.
- Tor is for web browsers, instant messaging clients, and more.
- Tor is free and open source for Windows, Mac, Linux/Unix, and Android

What is Tor?

Tor is free software and an open network that helps you defend against traffic analysis, a form of network surveillance that threatens personal freedom and privacy, confidential business activities and relationships, and state security.

Learn more about Tor »

Why Anonymity Matters

Tor protects you by bouncing your communications around a distributed network of relays run by volunteers all around the world: it prevents somebody watching your Internet connection from learning what sites you visit, and it prevents the sites you visit from learning your physical location.

Get involved with Tor »

Recent Blog Posts

Who Uses Tor?

Family & Friends: People like you and your family use Tor to protect themselves, their children, and their dignity while using the Internet.

Businesses: Businesses use Tor to research competition, keep business strategies confidential, and facilitate internal accountability.

Activists: Activists use Tor to anonymously report abuses from danger zones. Whistleblowers use Tor to safely report on corruption.

Our Projects

Tor Browser: Tor Browser contains everything you need to safely browse the Internet.

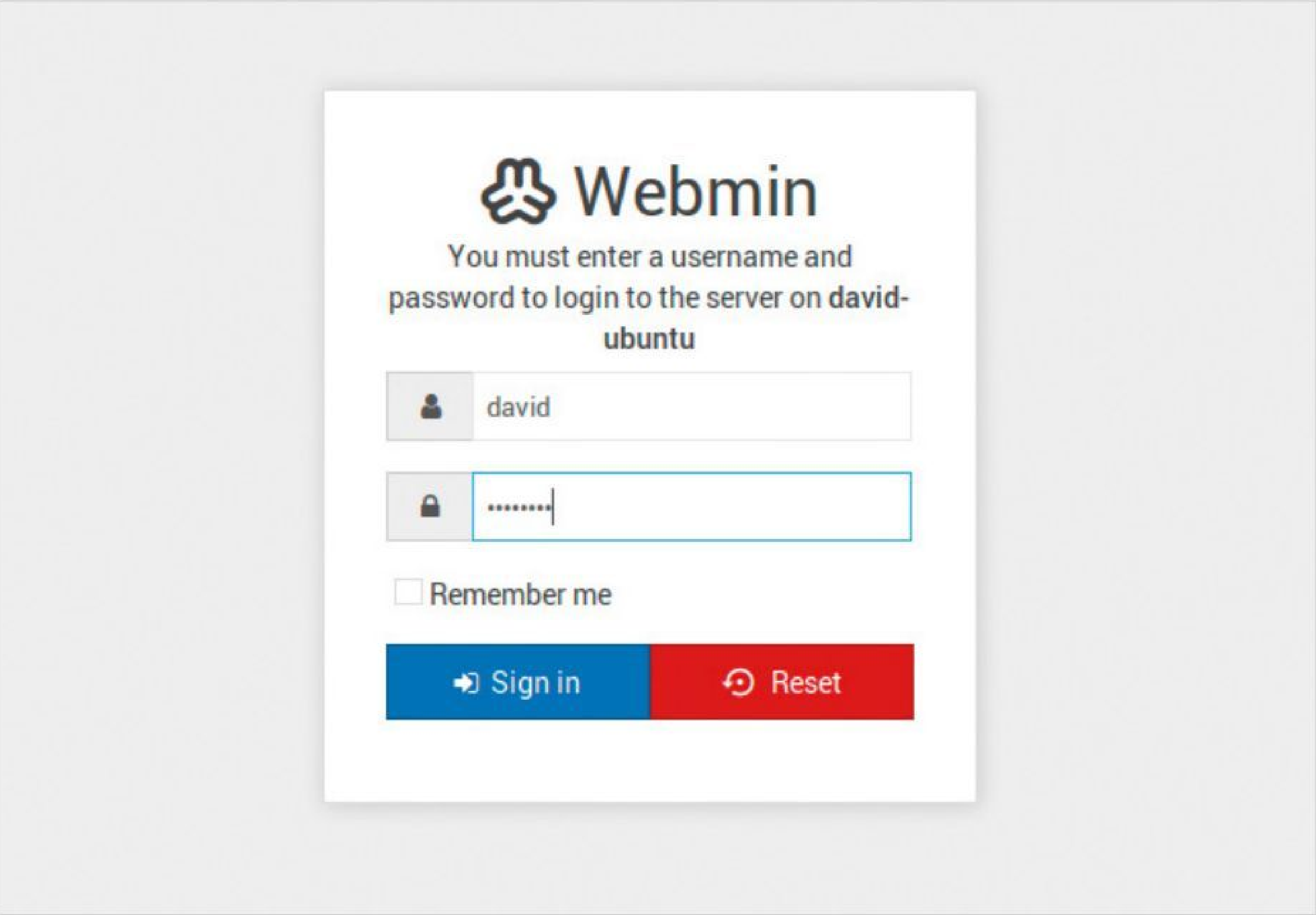
Orbot: Tor for Google Android devices.

Tails: Live CD/USB operating system

Arm: Terminal (command line)

PROJECT 10

You can use your Linux Mint installation as a server for hosting your important files, or backups, for your home network and outside. Imagine being able to gain access to your files from anywhere in the world. Well, with the app Webmin you're able to set up Mint as a personal cloud storage solution.



You must enter a username and password to login to the server on **david-ubuntu**

david

••••••••

☐ Remember me

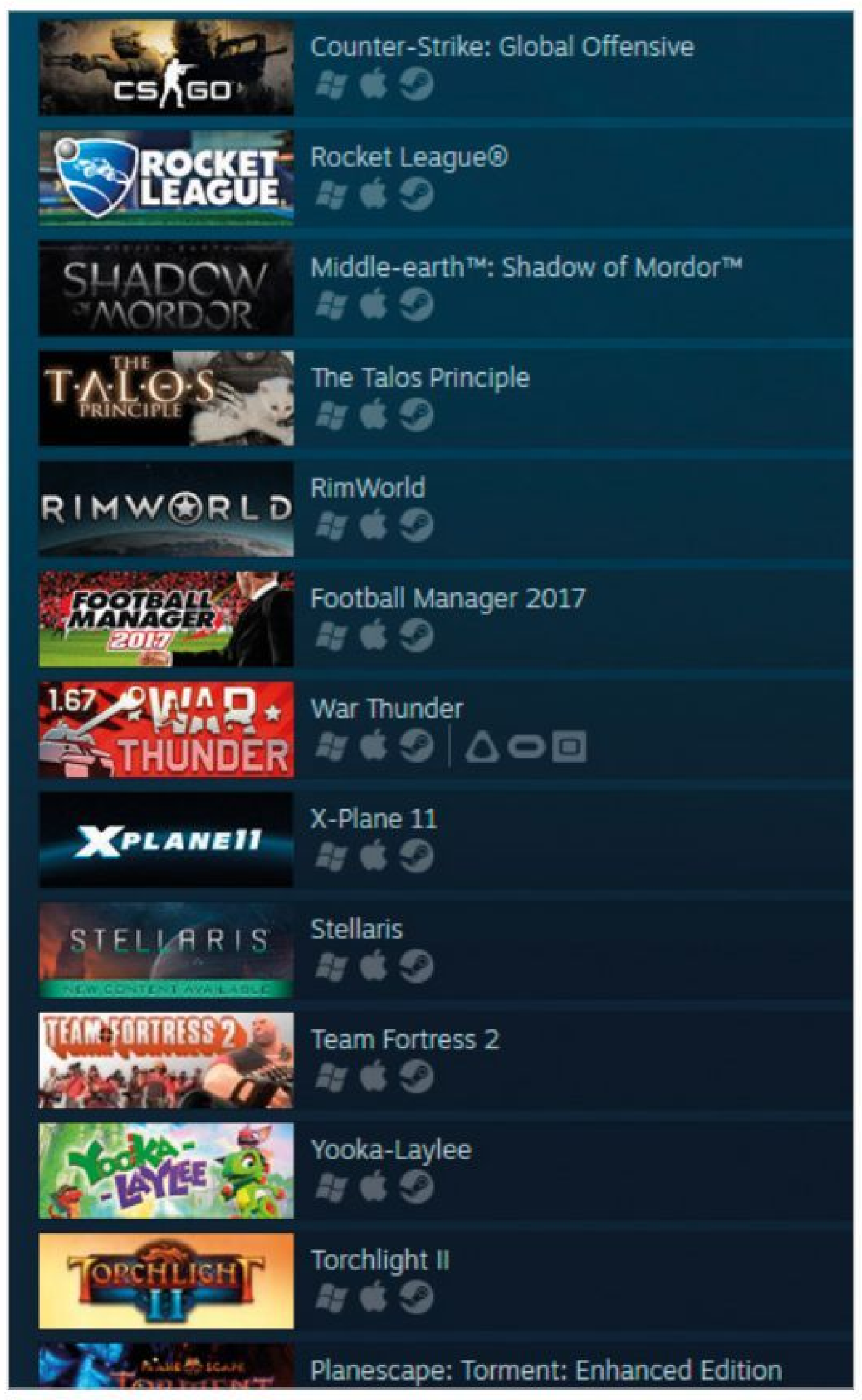
Gaming on Mint

Although Linux doesn't represent the main target of PC games developers, it does have a good selection on offer. Linux Mint is one of the more friendly distros when it comes to Linux gaming. What kind of system do you need for decent Mint gaming then?

GAME ON!

Building a Mint gaming system can be frustrating, after all it depends on what kind of games you want to play and what drivers are available for the hardware.

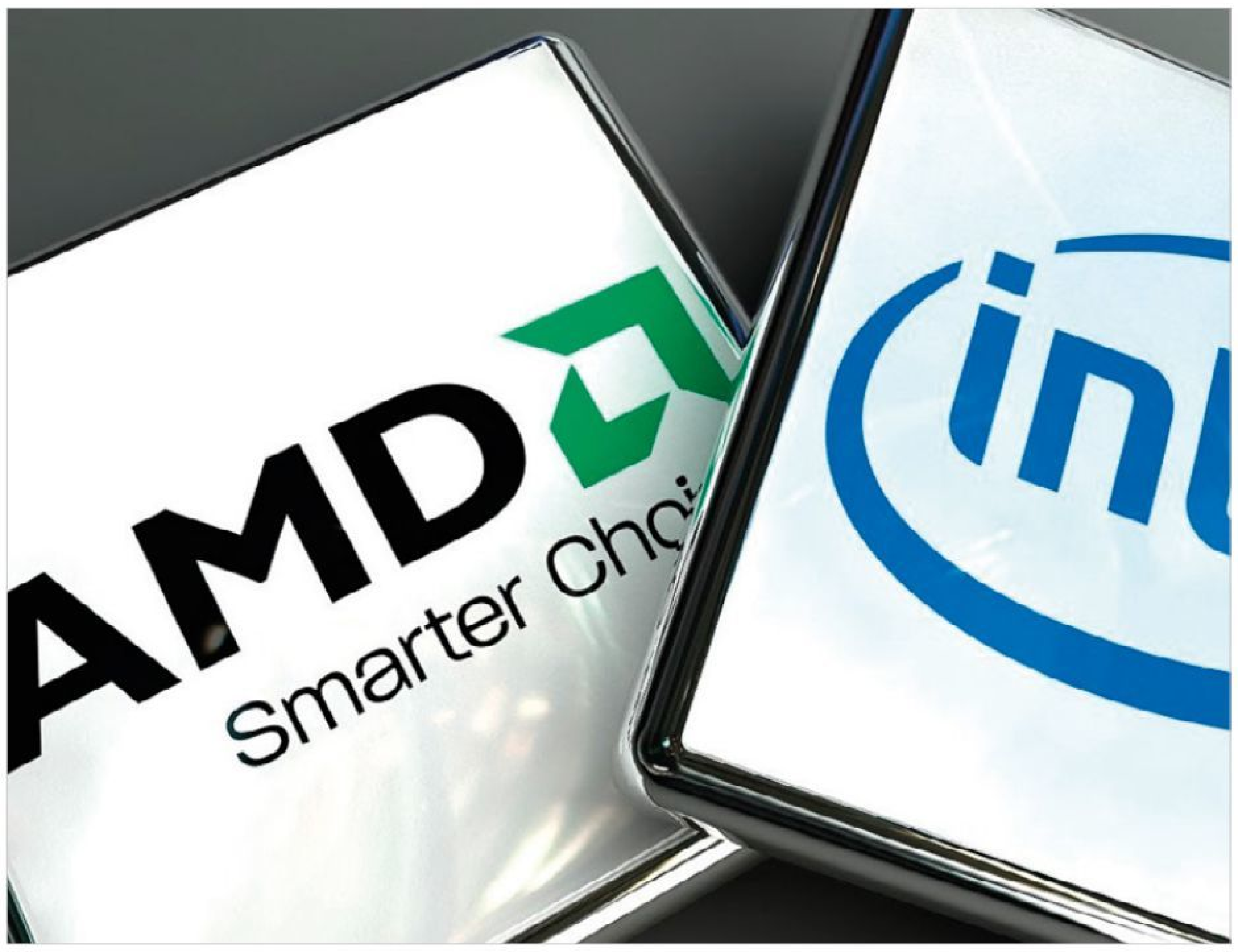
The first step in the process of designing a Mint gaming PC is to work out what kind of games you plan to play on it. There are thousands of titles available, which cover everything from simulation, third-person shooters and MMOs, to adventure, racing and strategy.



Counter-Strike: Global Offensive
Rocket League®
Middle-earth™: Shadow of Mordor™
The Talos Principle
RimWorld
Football Manager 2017
War Thunder
X-Plane 11
Stellaris
Team Fortress 2
Yooka-Laylee
Torchlight II
Planescape: Torment: Enhanced Edition

Whilst it's impossible to cater for every gaming title, and not very cost-effective to opt for the most powerful gaming setup, let's look at the basics needed for a middle-of-the-road, affordable Mint Gaming PC.

CPU: One of the most important components, for obvious reasons. The CPU will determine how fast the system works, including gaming. A good entry level model is an AMD Athlon X4 860K priced at around £64. Whereas an excellent mid-range CPU would be an Intel Core i3-6100, at around £110.



Memory: Linux Mint isn't quite as fussy as Windows, since most of the core OS runs on a relatively low amount of memory. However, gaming comes at a hefty memory cost at times. 8GB is generally regarded as the ideal amount, in terms of performance and cost-effectiveness. A good example is Crucial Ballistix Sport 8GB kit valued at roughly £55.

crucial
BA
BAL

Storage: Storage: An SSD is by far the fastest storage medium available today, so it makes a huge difference when it comes to most aspects of the overall system. However, as you start to look for higher capacities, prices go up too. A good mid-level choice would be a 480GB SSD, such as a Sandisk Z410, priced at £115.

Motherboard: The motherboard will greatly depend on the type of CPU you go for. Ideally you want one that has a PCI-e 2.0 x16 slot available, as this is where you place a dedicated graphics card. A good example is an ASRock H81M-HDS R2.0 (for Intel CPUs), which costs around £50.

GPU: Graphics Cards are the driving force behind gaming. With a dedicated GPU, you're able to output HD and even 4K gaming resolutions. Obviously, its performance comes at a price. An excellent modern choice is an Nvidia GTX-1050, priced at around £110. Note, it's generally agreed that Nvidia cards have better Linux drivers than AMD, resulting in better performance.

Monitor: The monitor is often overlooked when it comes to gaming, as most any monitors will output the games' graphics. Some monitors though, are better than others. A gaming specific monitor has a low refresh rate, multiple inputs and adjustable ergonomics. A BenQ RL2460HT 24-inch monitor at £145 is a good choice for most mid-level gamers.

Case: The case doesn't always factor in too much when it comes to gaming but a good case will offer you more in the long-run. For example, a mid-tower case has plenty of room to expand your system, fit bigger GPUs and advanced cooling and looks good too. This CIT Hero Mid-Tower case comes in at a reasonable £18.

Peripherals: A gaming keyboard and mouse may seem a little unnecessary but a good pair would feature programmable macro keys or buttons, RGB lighting effects, extra durability and an ergonomic design. The Cooler Master Storm Devastator keyboard and mouse kit at £40, is a fine example.

Where to get Help for Linux Mint

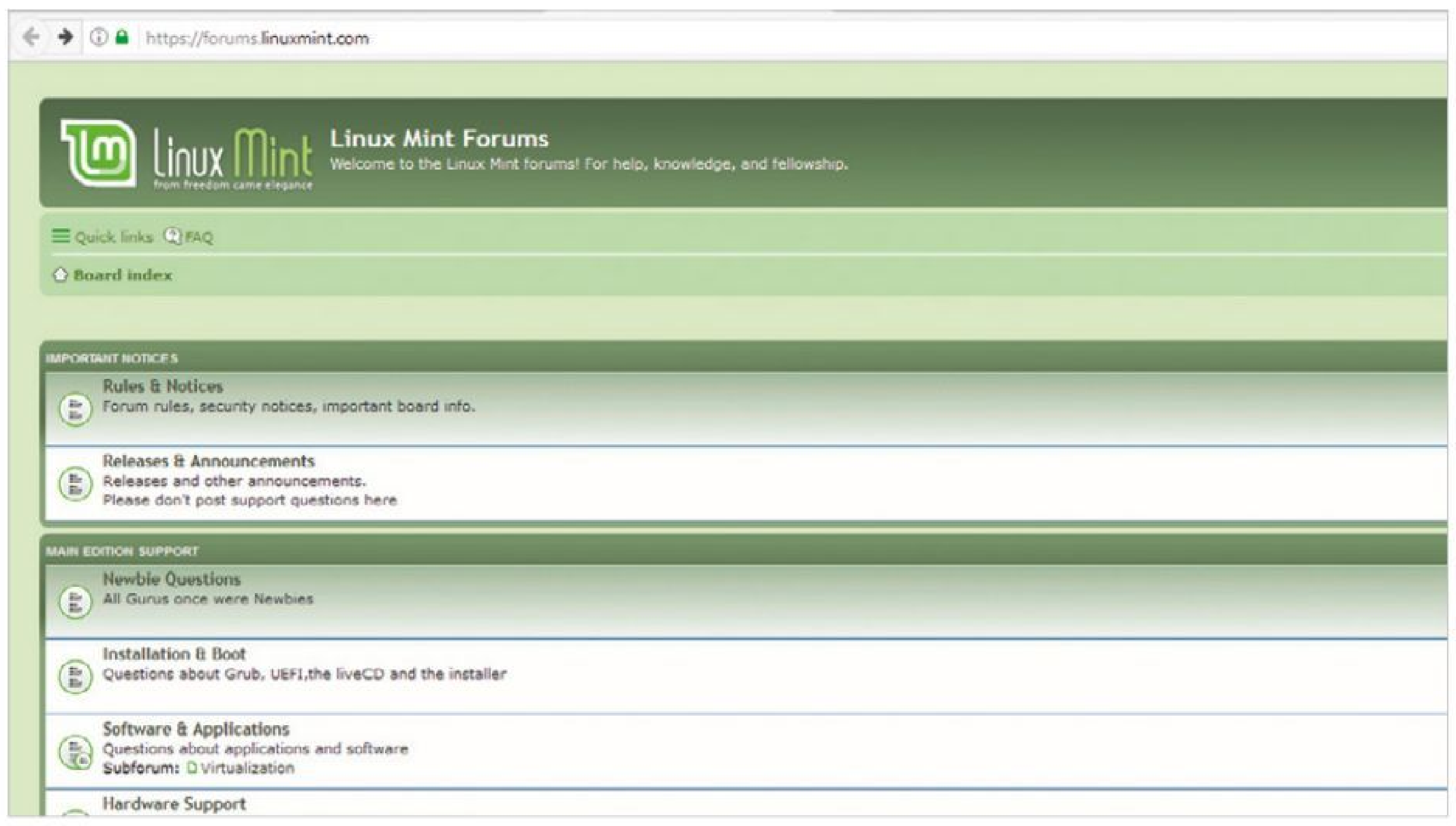
Linux Mint is a friendly portal to the wider world of Linux, and as such extremely user-friendly, but there will inevitably come a time when you're completely stumped when facing a problem. Don't worry though, help is at hand.

HELP!

Getting help for Linux Mint issues is remarkably easy, all you need to do is ask the right question. Obviously it depends on the problem you're up against but you can find the community a helpful place.

STEP 1

The first port of call for any help requests should be the Linux Mint Forums. In here you can find a community of helpful, and incredibly knowledgeable users who will respect your questions no matter your level of Mint knowledge. Sign up, introduce yourself and ask away. Remember, there's no such a thing as a stupid question.



https://forums.linuxmint.com

Linux Mint Forums
Welcome to the Linux Mint forums! For help, knowledge, and fellowship.

Quick links FAQ
Board index

IMPORTANT NOTICES

Rules & Notices
Forum rules, security notices, important board info.

Releases & Announcements
Releases and other announcements.
Please don't post support questions here

MAIN EDITION SUPPORT

Newbie Questions
All Gurus once were Newbies

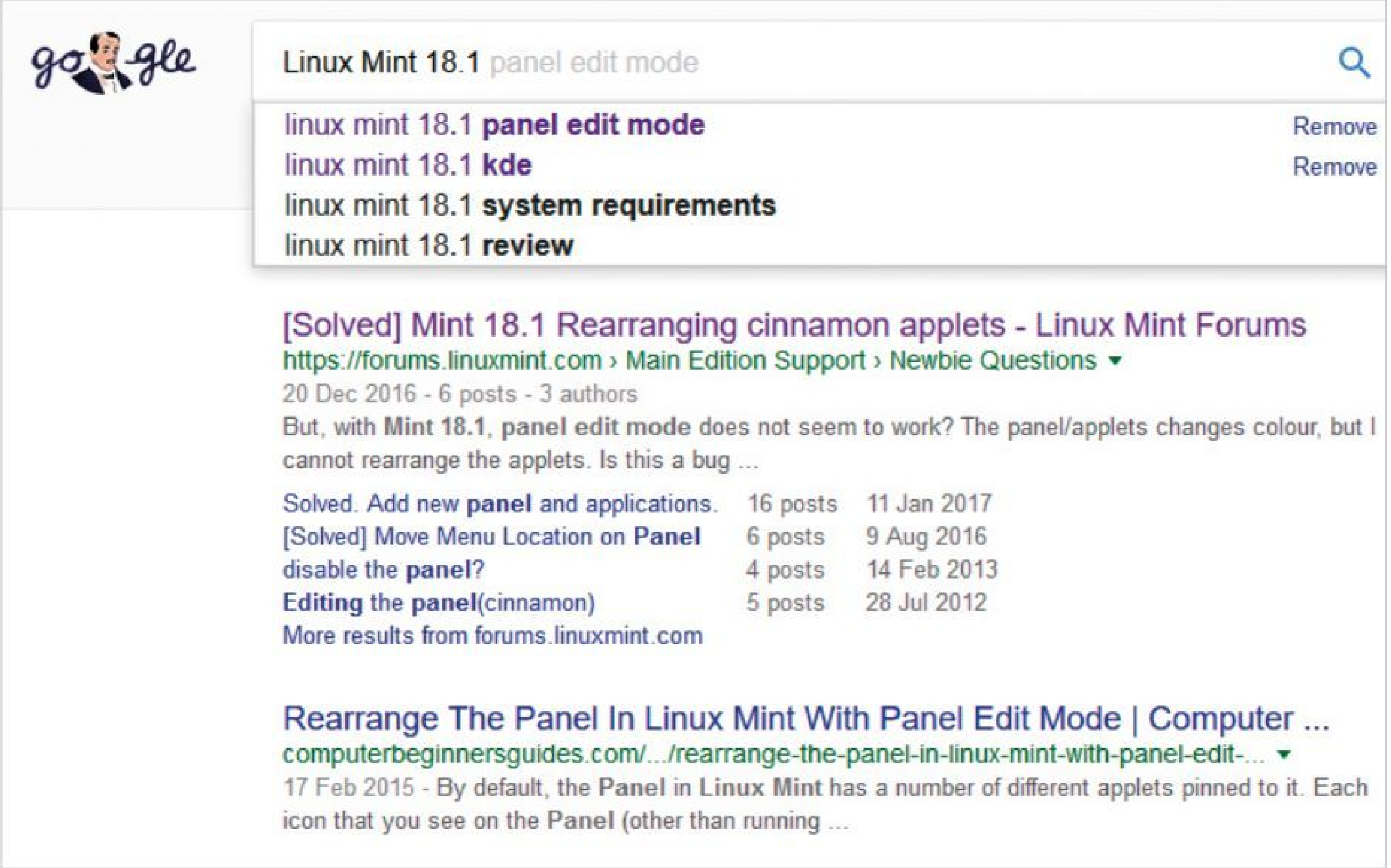
Installation & Boot
Questions about Grub, UEFI,the liveCD and the installer

Software & Applications
Questions about applications and software
Subforum: Virtualization

Hardware Support

STEP 2

Simply searching for the answer to your problem will likely be the more common method of solution hunting for most folk. However, even if your Google-Fu skills are beyond compare, what you may come across may not work, or create even more issues. Therefore, it's best to check with other Mint users in the forums before applying an unknown fix.



Linux Mint 18.1 panel edit mode

linux mint 18.1 **panel edit mode** Remove
linux mint 18.1 **kde** Remove
linux mint 18.1 **system requirements**
linux mint 18.1 **review**

[Solved] Mint 18.1 Rearranging cinnamon applets - Linux Mint Forums
https://forums.linuxmint.com › Main Edition Support › Newbie Questions ▾
20 Dec 2016 - 6 posts - 3 authors
But, with **Mint 18.1**, **panel edit mode** does not seem to work? The panel/applets changes colour, but I cannot rearrange the applets. Is this a bug ...

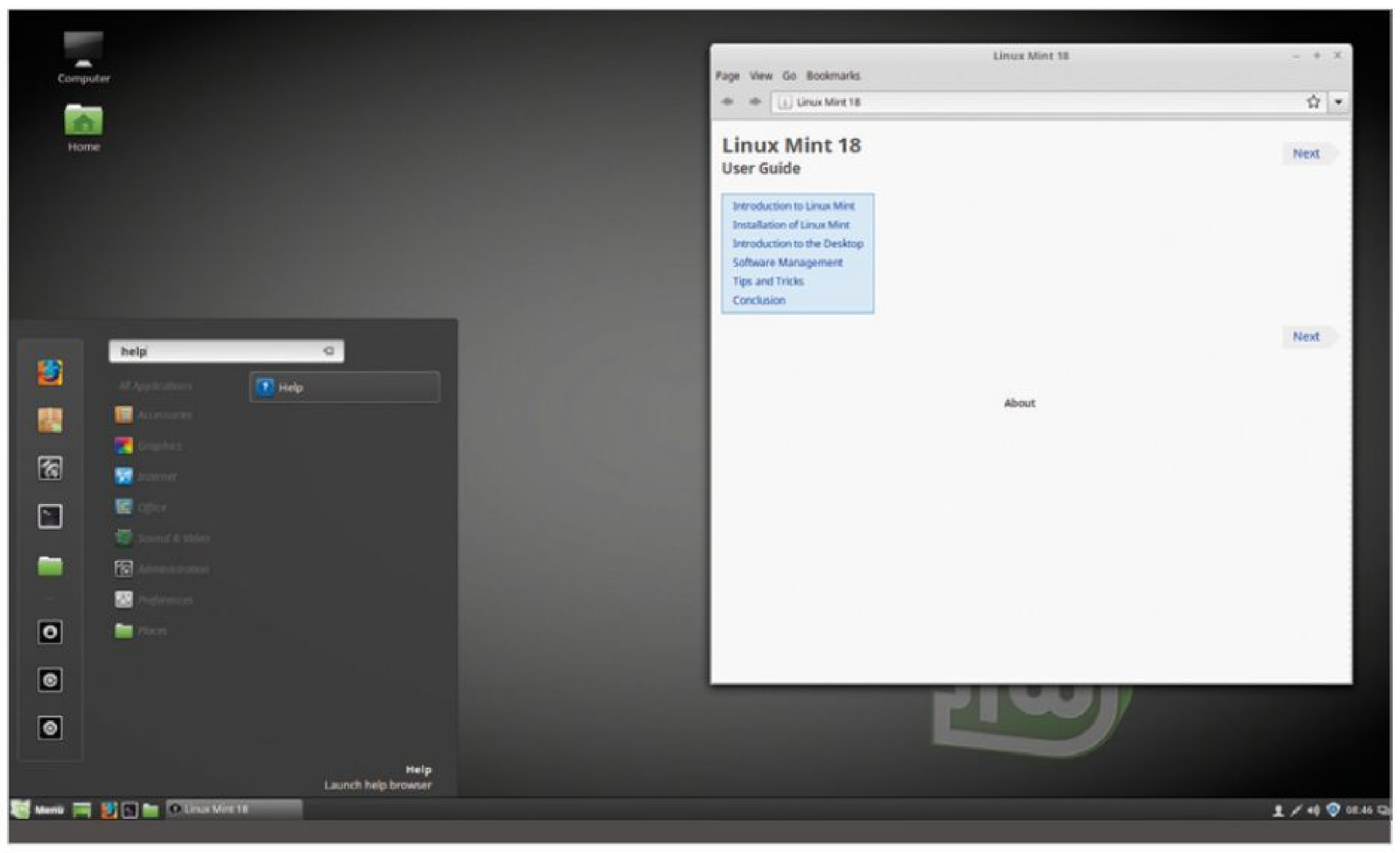
Solved. Add new **panel** and applications.	16 posts	11 Jan 2017
[Solved] Move Menu Location on **Panel**	6 posts	9 Aug 2016
disable the **panel**?	4 posts	14 Feb 2013
Editing the **panel**(cinnamon)	5 posts	28 Jul 2012

More results from forums.linuxmint.com

Rearrange The Panel In Linux Mint With Panel Edit Mode | Computer ...
computerbeginnersguides.com/.../rearrange-the-panel-in-linux-mint-with-panel-edit-... ▾
17 Feb 2015 - By default, the **Panel** in **Linux Mint** has a number of different applets pinned to it. Each icon that you see on the **Panel** (other than running ...

STEP 3

Of course, you can always check out the built-in help functions within Linux Mint itself. From the Welcome Screen you can view the Documentation, which may shine some light on your problem. Likewise, simply typing help into the Mint Menu search box will bring up the User Guide for you to read through.

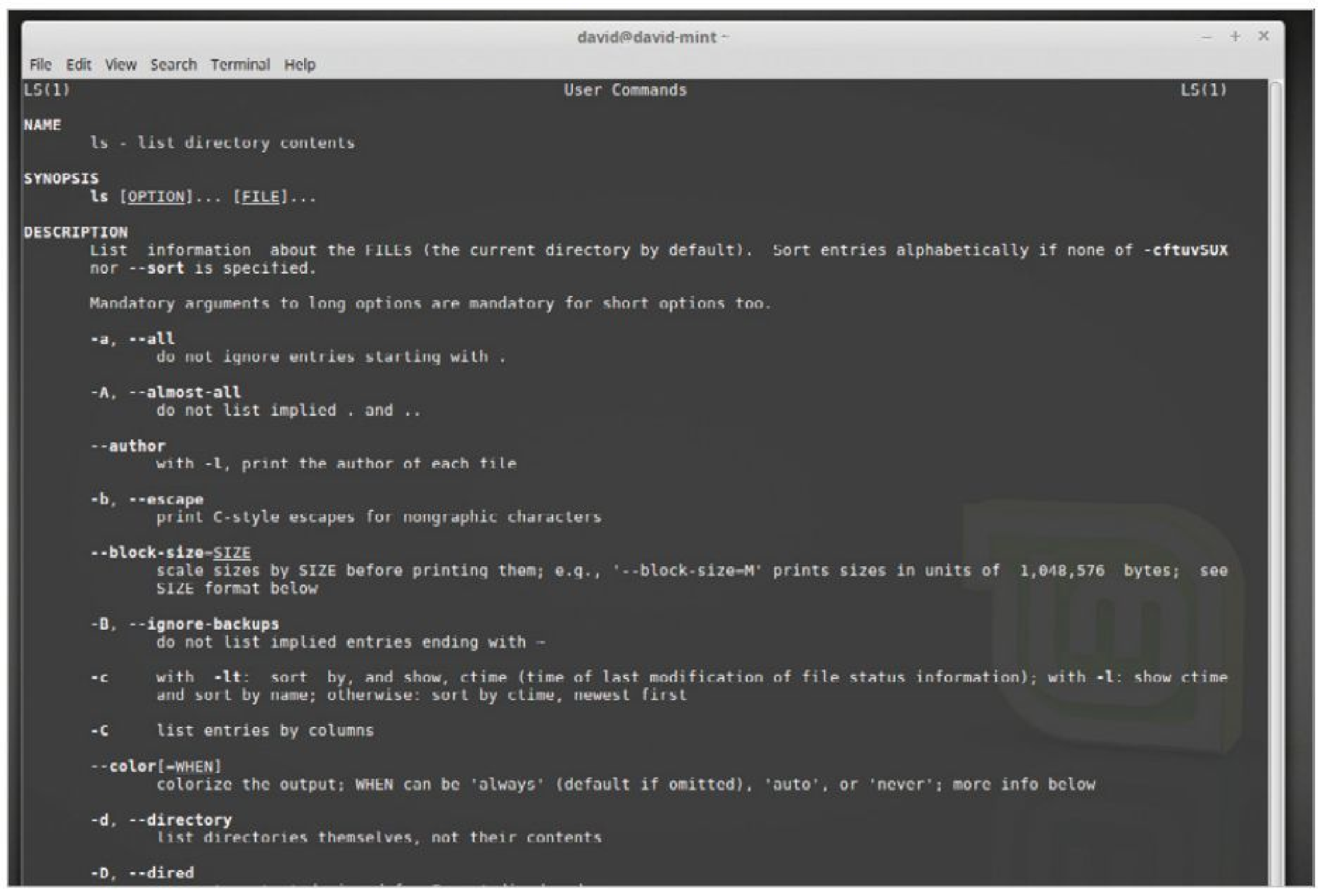


Linux Mint 18
User Guide

Introduction to Linux Mint
Installation of Linux Mint
Introduction to the Desktop
Software Management
Tips and Tricks
Conclusion

STEP 4

If it's help on a particular command within the Terminal, then as well as Googling the command you can also call up the Man Pages. The Man Pages are text-based Manuals on nearly every command in Linux Mint. For example, to look up the Man Page for the ls command, enter: `man ls`.



```
LS(1)                              User Commands                              LS(1)

NAME
       ls - list directory contents

SYNOPSIS
       ls [OPTION]... [FILE]...

DESCRIPTION
       List  information  about the FILEs (the current directory by default).  Sort entries alphabetically if none of -cftuvSUX
       nor --sort is specified.

       Mandatory arguments to long options are mandatory for short options too.

       -a, --all
              do not ignore entries starting with .

       -A, --almost-all
              do not list implied . and ..

       --author
              with -l, print the author of each file

       -b, --escape
              print C-style escapes for nongraphic characters

       --block-size=SIZE
              scale sizes by SIZE before printing them; e.g., '--block-size=M' prints sizes in units of  1,048,576  bytes;  see
              SIZE format below

       -B, --ignore-backups
              do not list implied entries ending with ~

       -c     with  -lt:  sort  by, and show, ctime (time of last modification of file status information); with -l: show ctime
              and sort by name; otherwise: sort by ctime, newest first

       -C     list entries by columns

       --color[=WHEN]
              colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below

       -d, --directory
              list directories themselves, not their contents

       -D, --dired
```

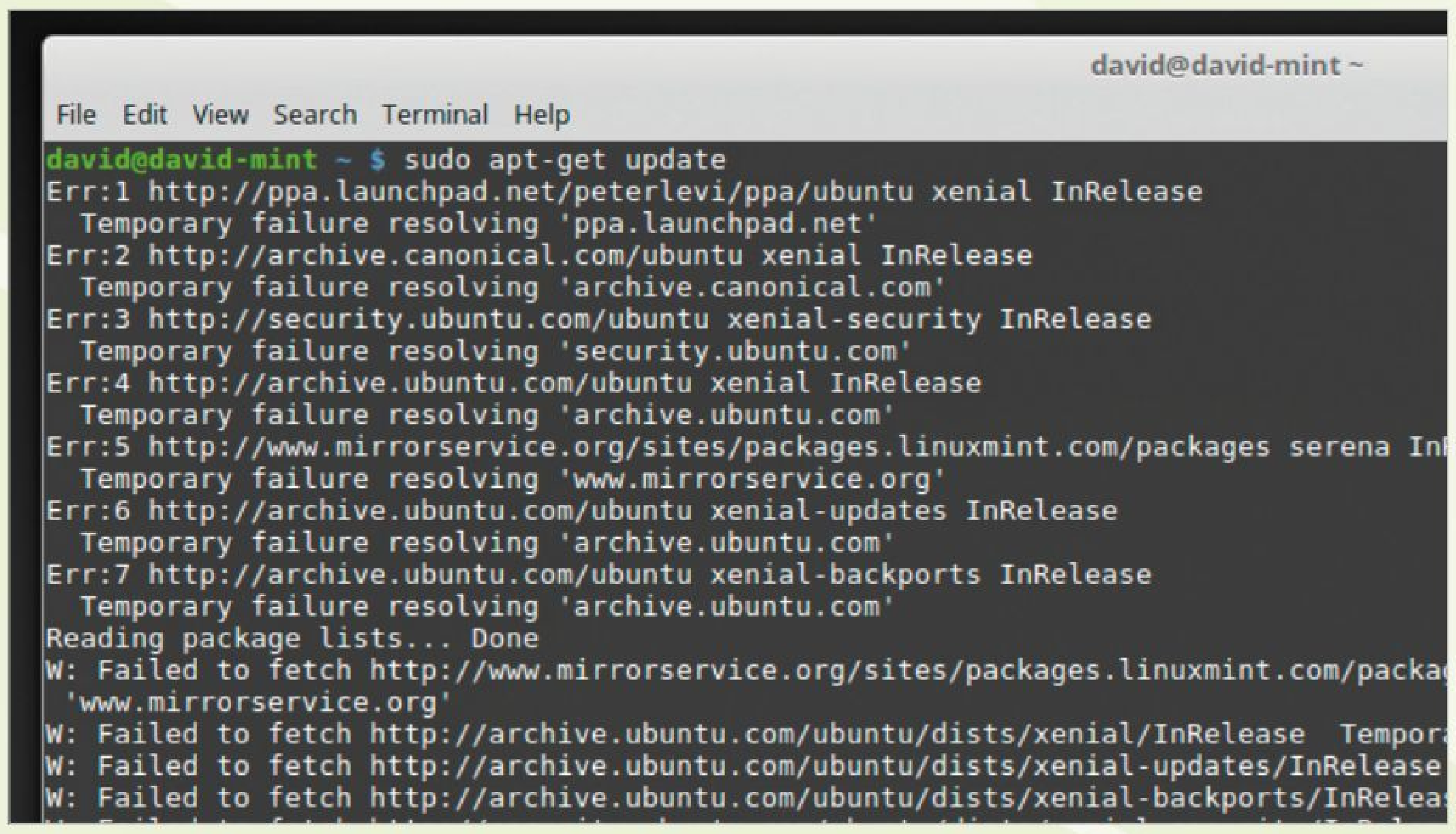
BEATING THE PROBLEM BLUES

Things can seem pretty bleak when you're at the bad end of a computer related problem. One user states this is the fix, whereas another states that is in fact the correct solution. So which do you turn when things go south?

Dealing with a computer issue can be difficult, as it's not always as straight forward as you first think. Based on the above possible locations to look for help, here are some steps to help you get the most from your help request.

STEP 1

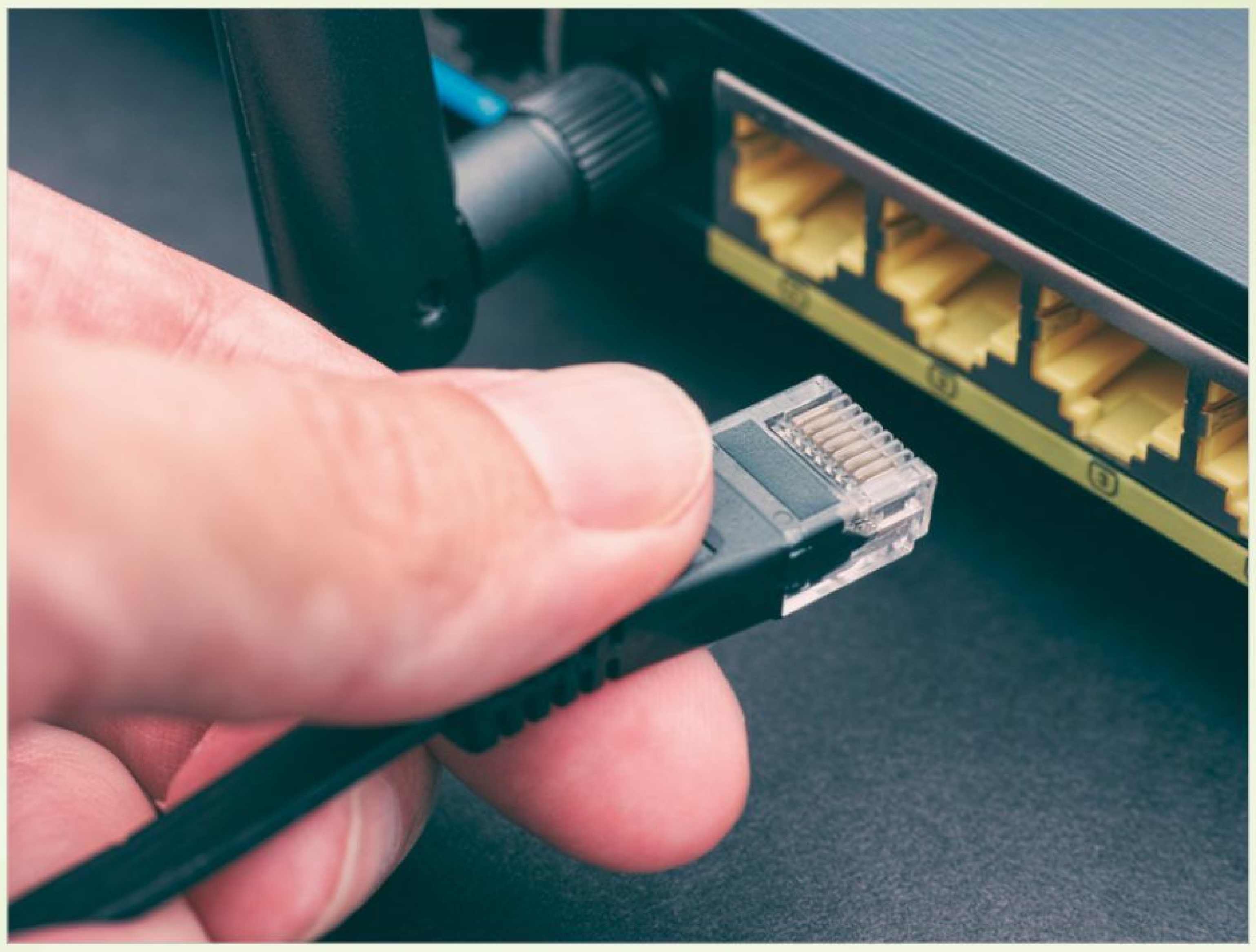
Is there an error code? Write down any accompanying error codes that crop up as a result of the issue. While some may collectively point to an issue, others are more precise and can help you target the solution.



```
david@david-mint ~ $ sudo apt-get update
Err:1 http://ppa.launchpad.net/peterlevi/ppa/ubuntu xenial InRelease
  Temporary failure resolving 'ppa.launchpad.net'
Err:2 http://archive.canonical.com/ubuntu xenial InRelease
  Temporary failure resolving 'archive.canonical.com'
Err:3 http://security.ubuntu.com/ubuntu xenial-security InRelease
  Temporary failure resolving 'security.ubuntu.com'
Err:4 http://archive.ubuntu.com/ubuntu xenial InRelease
  Temporary failure resolving 'archive.ubuntu.com'
Err:5 http://www.mirrorservice.org/sites/packages.linuxmint.com/packages serena In
  Temporary failure resolving 'www.mirrorservice.org'
Err:6 http://archive.ubuntu.com/ubuntu xenial-updates InRelease
  Temporary failure resolving 'archive.ubuntu.com'
Err:7 http://archive.ubuntu.com/ubuntu xenial-backports InRelease
  Temporary failure resolving 'archive.ubuntu.com'
Reading package lists... Done
W: Failed to fetch http://www.mirrorservice.org/sites/packages.linuxmint.com/packag
 'www.mirrorservice.org'
W: Failed to fetch http://archive.ubuntu.com/ubuntu/dists/xenial/InRelease  Tempora
W: Failed to fetch http://archive.ubuntu.com/ubuntu/dists/xenial-updates/InRelease
W: Failed to fetch http://archive.ubuntu.com/ubuntu/dists/xenial-backports/InReleas
```

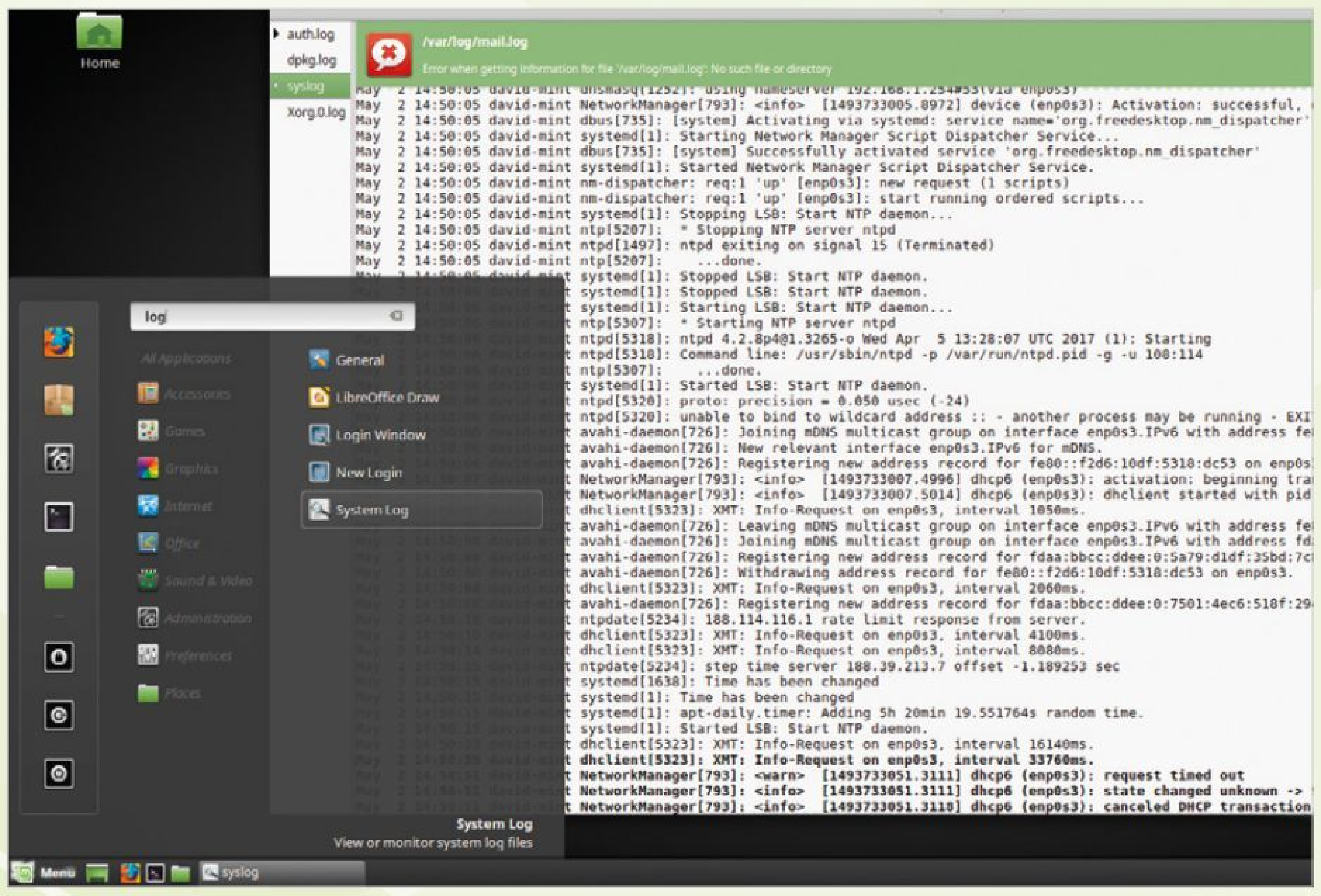
STEP 2

Check your kit. While it may seem obvious on paper, checking to see if all your cables, especially internet cables and connections, are all plugged in can often be eclipsed by the presence of a frustrating issue. This usually happens when you want something in a hurry. Computers can be cruel like that.



STEP 3

If you want a detailed look at what's going on with the system, then consult the Syslog. Click on the menu and enter log into the search, from the list of results choose System Log. In here you can find countless lines of what's loaded, launched, failed, working and not working. Within these lines could be the key to your issue.



/var/log/mail.log

Error when getting information for file '/var/log/mail.log': No such file or directory

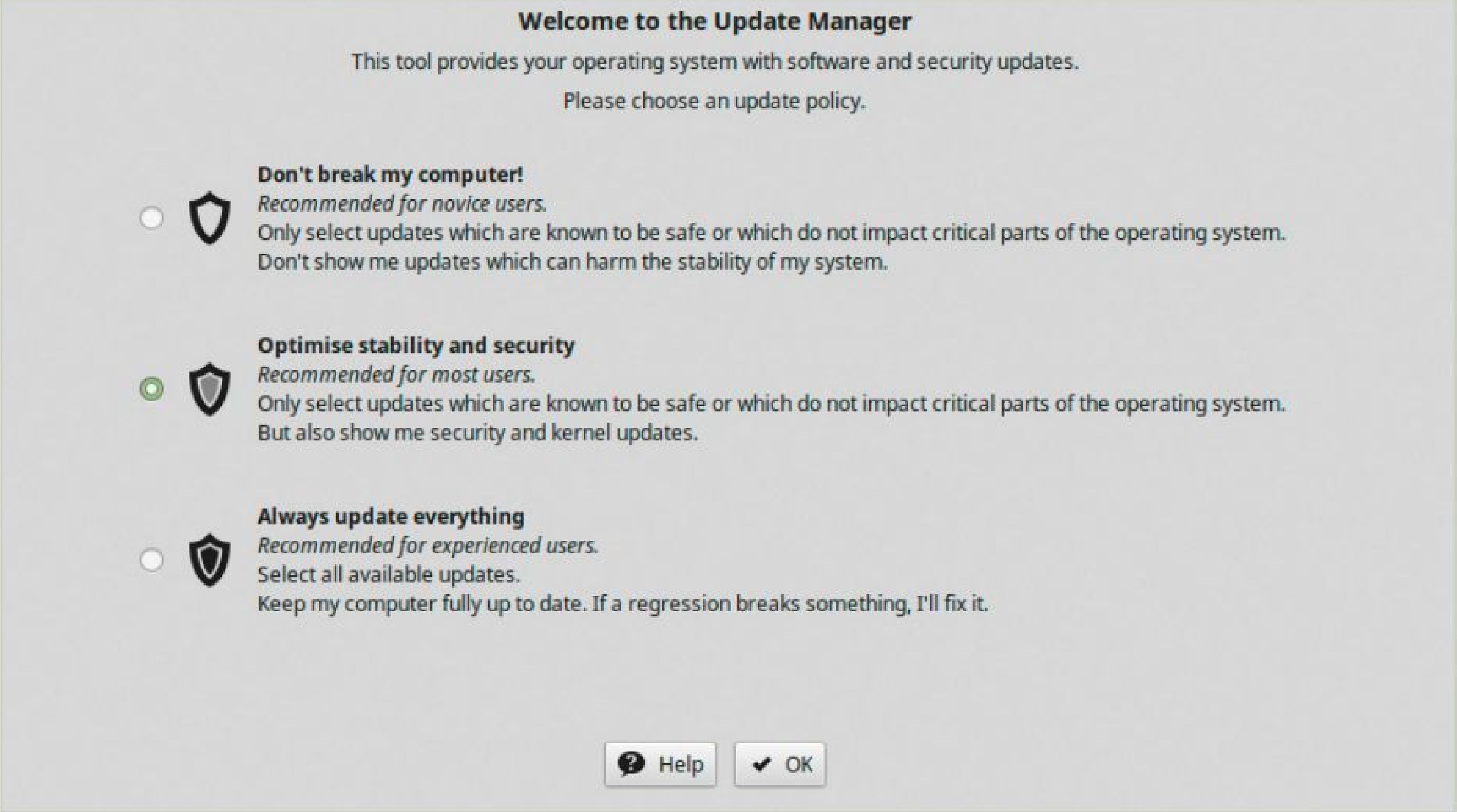
System Log

View or monitor system log files

```
May  2 14:50:05 david-mint NetworkManager[793]: <info>  [1493733005.8972] device (enp0s3): Activation: successful,
May  2 14:50:05 david-mint dbus[735]: [system] Activating via systemd: service name='org.freedesktop.nm_dispatcher'
May  2 14:50:05 david-mint systemd[1]: Starting Network Manager Script Dispatcher Service...
May  2 14:50:05 david-mint dbus[735]: [system] Successfully activated service 'org.freedesktop.nm_dispatcher'
May  2 14:50:05 david-mint systemd[1]: Started Network Manager Script Dispatcher Service.
May  2 14:50:05 david-mint nm-dispatcher: req:1 'up' [enp0s3]: new request (1 scripts)
May  2 14:50:05 david-mint nm-dispatcher: req:1 'up' [enp0s3]: start running ordered scripts...
May  2 14:50:05 david-mint systemd[1]: Stopping LSB: Start NTP daemon...
May  2 14:50:05 david-mint ntp[5207]:  * Stopping NTP server ntpd
May  2 14:50:05 david-mint ntpd[1497]: ntpd exiting on signal 15 (Terminated)
May  2 14:50:05 david-mint ntp[5207]:    ...done.
t systemd[1]: Stopped LSB: Start NTP daemon.
t systemd[1]: Stopped LSB: Start NTP daemon.
t systemd[1]: Starting LSB: Start NTP daemon...
t ntp[5307]:  * Starting NTP server ntpd
t ntpd[5318]: ntpd 4.2.8p4@1.3265-o Wed Apr  5 13:28:07 UTC 2017 (1): Starting
t ntpd[5318]: Command line: /usr/sbin/ntpd -p /var/run/ntpd.pid -g -u 108:114
t ntp[5307]:    ...done.
t systemd[1]: Started LSB: Start NTP daemon.
t ntpd[5320]: proto: precision = 0.050 usec (-24)
t ntpd[5320]: unable to bind to wildcard address :: - another process may be running - EXI
t avahi-daemon[726]: Joining mDNS multicast group on interface enp0s3.IPv6 with address fe
t avahi-daemon[726]: New relevant interface enp0s3.IPv6 for mDNS.
t avahi-daemon[726]: Registering new address record for fe80::f2d6:10df:5318:dc53 on enp0s
t NetworkManager[793]: <info>  [1493733007.4996] dhcp6 (enp0s3): activation: beginning tra
t NetworkManager[793]: <info>  [1493733007.5014] dhcp6 (enp0s3): dhclient started with pid
t dhclient[5323]: XMT: Info-Request on enp0s3, interval 1050ms.
t avahi-daemon[726]: Leaving mDNS multicast group on interface enp0s3.IPv6 with address fe
t avahi-daemon[726]: Joining mDNS multicast group on interface enp0s3.IPv6 with address fd
t avahi-daemon[726]: Registering new address record for fdaa:bbcc:ddee:0:5a79:d1df:35bd:7c
t avahi-daemon[726]: Withdrawing address record for fe80::f2d6:10df:5318:dc53 on enp0s3.
t dhclient[5323]: XMT: Info-Request on enp0s3, interval 2060ms.
t avahi-daemon[726]: Registering new address record for fdaa:bbcc:ddee:0:7501:4ec6:518f:29
t ntpdate[5234]: 188.114.116.1 rate limit response from server.
t dhclient[5323]: XMT: Info-Request on enp0s3, interval 4100ms.
t dhclient[5323]: XMT: Info-Request on enp0s3, interval 8080ms.
t ntpdate[5234]: step time server 188.39.213.7 offset -1.189253 sec
t systemd[1638]: Time has been changed
t systemd[1]: Time has been changed
t systemd[1]: apt-daily.timer: Adding 5h 20min 19.551764s random time.
t systemd[1]: Started LSB: Start NTP daemon.
t dhclient[5323]: XMT: Info-Request on enp0s3, interval 16140ms.
t dhclient[5323]: XMT: Info-Request on enp0s3, interval 33760ms.
t NetworkManager[793]: <warn>  [1493733051.3111] dhcp6 (enp0s3): request timed out
t NetworkManager[793]: <info>  [1493733051.3111] dhcp6 (enp0s3): state changed unknown ->
t NetworkManager[793]: <info>  [1493733051.3118] dhcp6 (enp0s3): canceled DHCP transaction
```

STEP 4

It's best to check the update policy you opted for in the Update Manager. It's easy to click the Always Update Everything button and blindly update the system without really looking at the red level 5 updates. If you think you've applied a level 5 update, it's best to mention it during your problem resolution search.



Welcome to the Update Manager

This tool provides your operating system with software and security updates.

Please choose an update policy.

○ **Don't break my computer!**
Recommended for novice users.
Only select updates which are known to be safe or which do not impact critical parts of the operating system.
Don't show me updates which can harm the stability of my system.

● **Optimise stability and security**
Recommended for most users.
Only select updates which are known to be safe or which do not impact critical parts of the operating system.
But also show me security and kernel updates.

○ **Always update everything**
Recommended for experienced users.
Select all available updates.
Keep my computer fully up to date. If a regression breaks something, I'll fix it.

Linux Mint is a really stable environment to work with. The team has done an excellent job of making sure that what you get on your desktop will work seamlessly and without fault. Naturally bugs do creep in but it's not often something drastic happens.

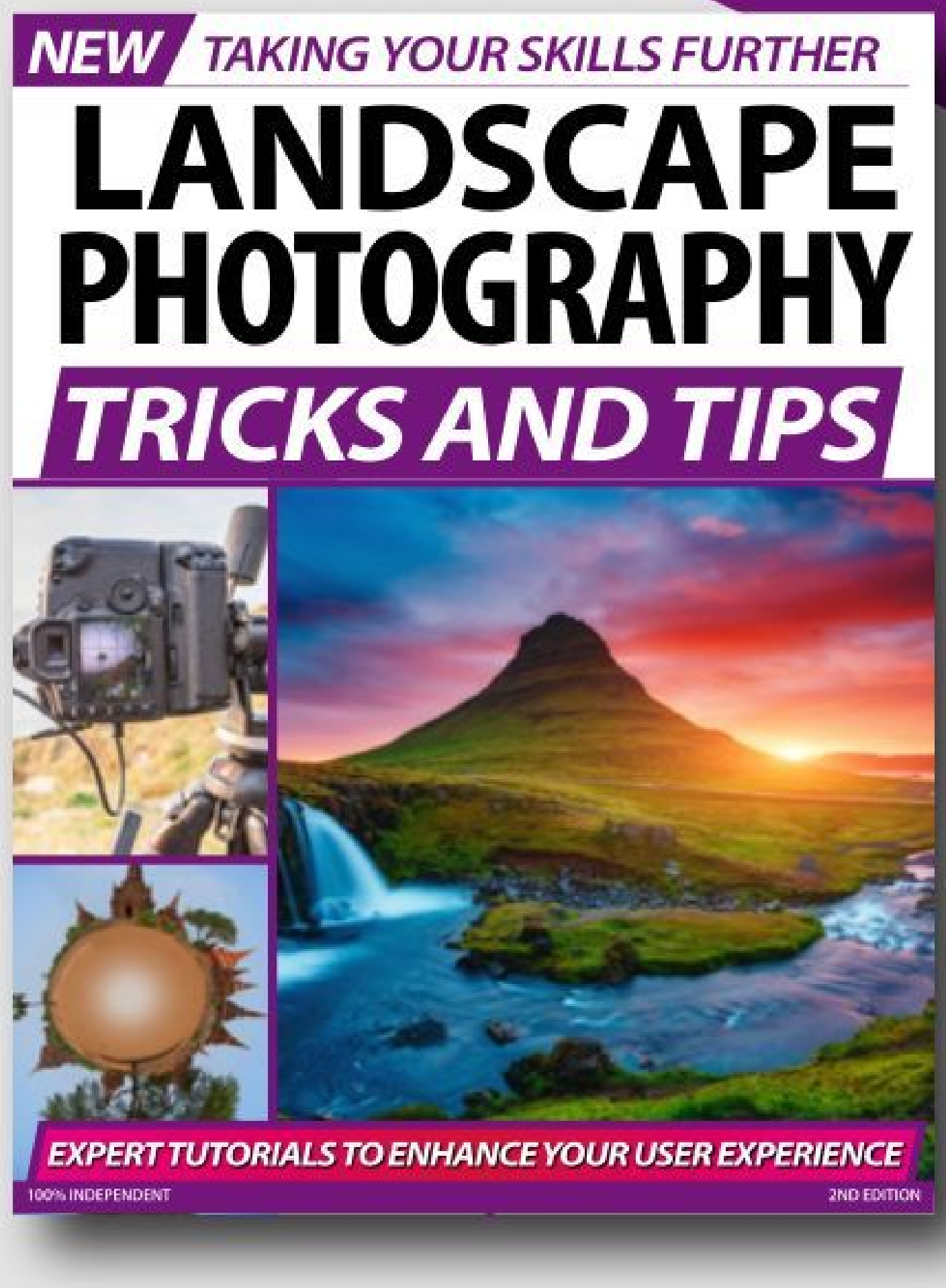
If it does though, follow these steps and the suggestions and we're sure you'll be up and running again in no time. One last thing: if you do get help from the Mint Forums, don't forget to say thanks to those who lent you a helping hand. A little kindness goes a long way.

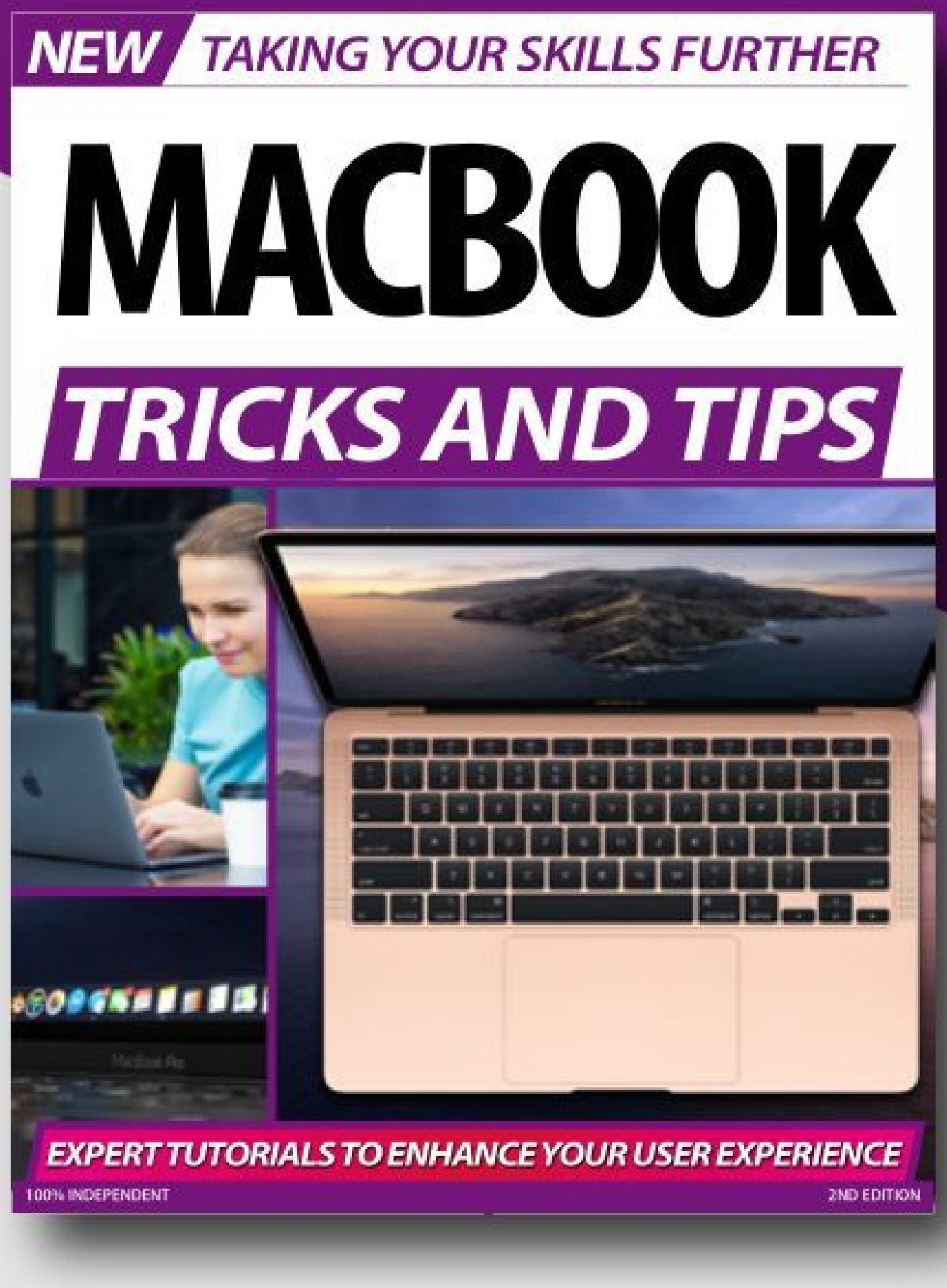
Congratulations, we have reached the end of your latest tech adventure. With help from our team of tech experts, you have been able to answer all your questions, grow in confidence and ultimately master any issues you had. You can now proudly proclaim that you are getting the absolute best from your latest choice from the ever changing world of consumer technology and software.

So what's next? Do you want to start a new hobby? Are you looking to upgrade to a new device? Or simply looking to learn a new skill? Whatever your plans we are here to help you. Just check our expansive range of For Beginners guidebooks and we are positive you will find what you are looking for. This adventure with us may have ended, but that's not to say that your journey is over. Every new hardware or software update brings its new features and challenges, and of course you already know we are here to help. So we will look forward to seeing you again soon.

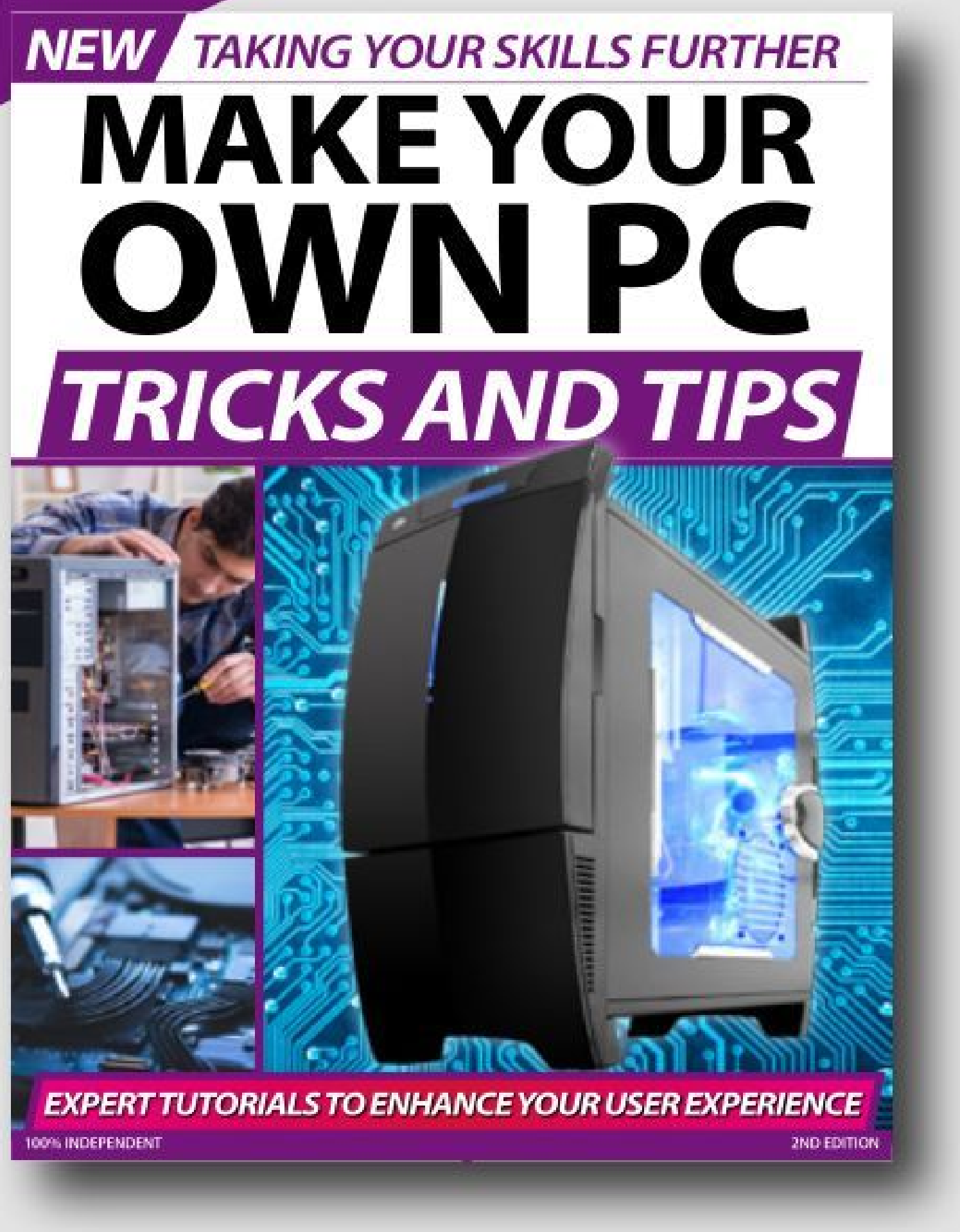
Papercut

Discover more of our guides...


NEW TAKING YOUR SKILLS FURTHER
LANDSCAPE PHOTOGRAPHY
TRICKS AND TIPS
EXPERT TUTORIALS TO ENHANCE YOUR USER EXPERIENCE
100% INDEPENDENT
2ND EDITION


NEW TAKING YOUR SKILLS FURTHER
MACBOOK
TRICKS AND TIPS
EXPERT TUTORIALS TO ENHANCE YOUR USER EXPERIENCE
100% INDEPENDENT
2ND EDITION

NEW TAKING YOUR SKILLS FURTHER
MAC OS CATALINA
TRICKS AND TIPS
EXPERT TUTORIALS TO ENHANCE YOUR USER EXPERIENCE
100% INDEPENDENT
2ND EDITION


NEW TAKING YOUR SKILLS FURTHER
MAKE YOUR OWN PC
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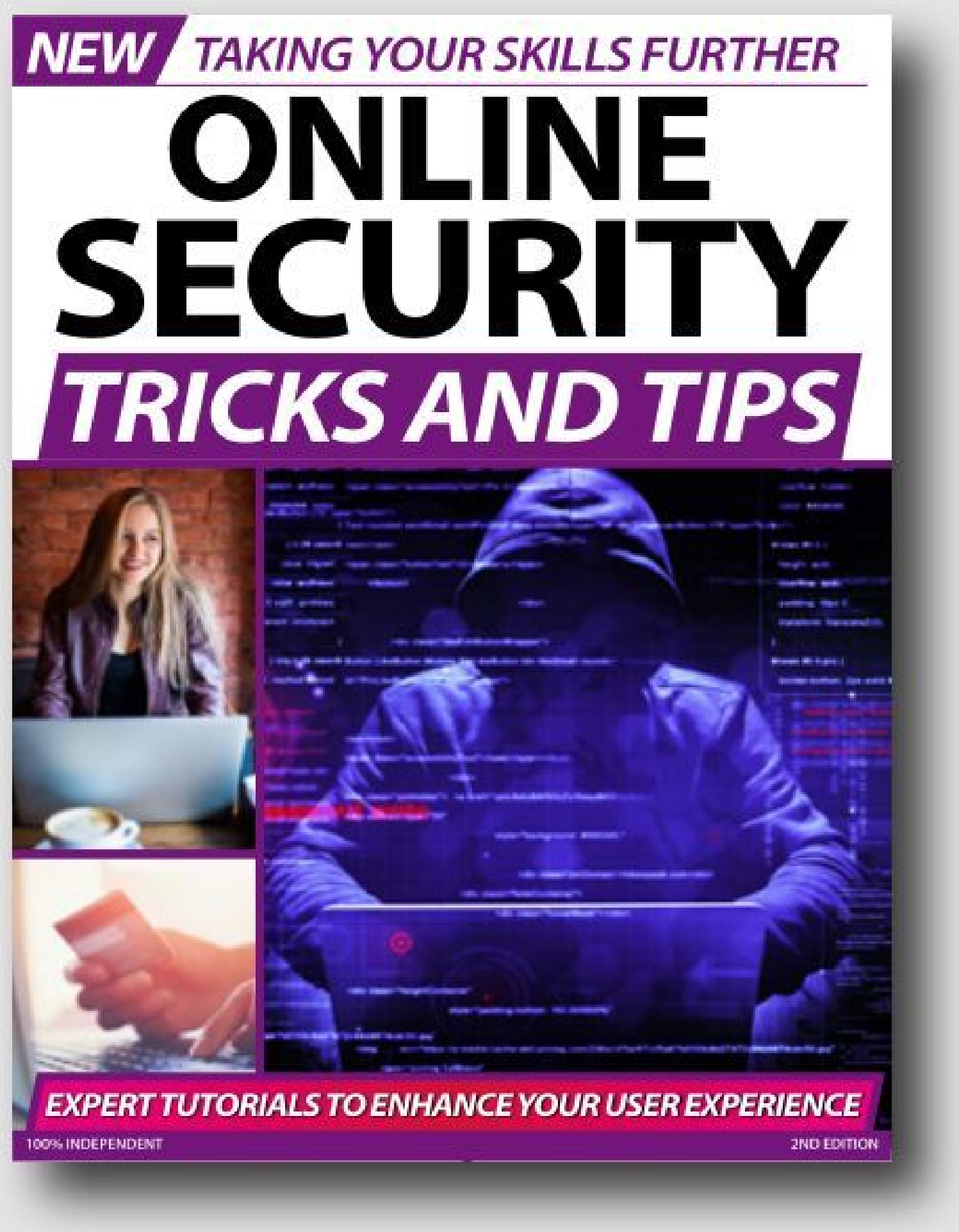
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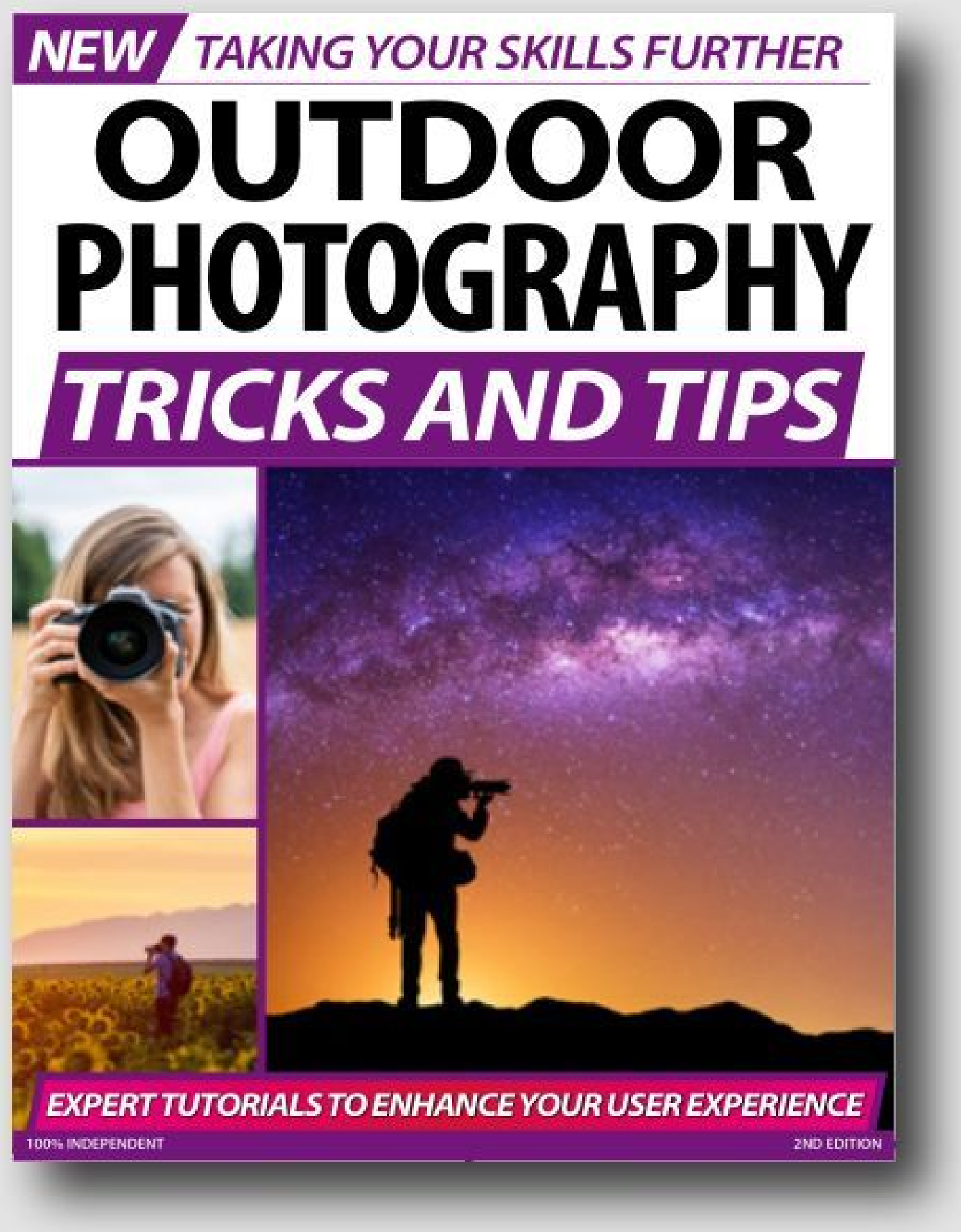
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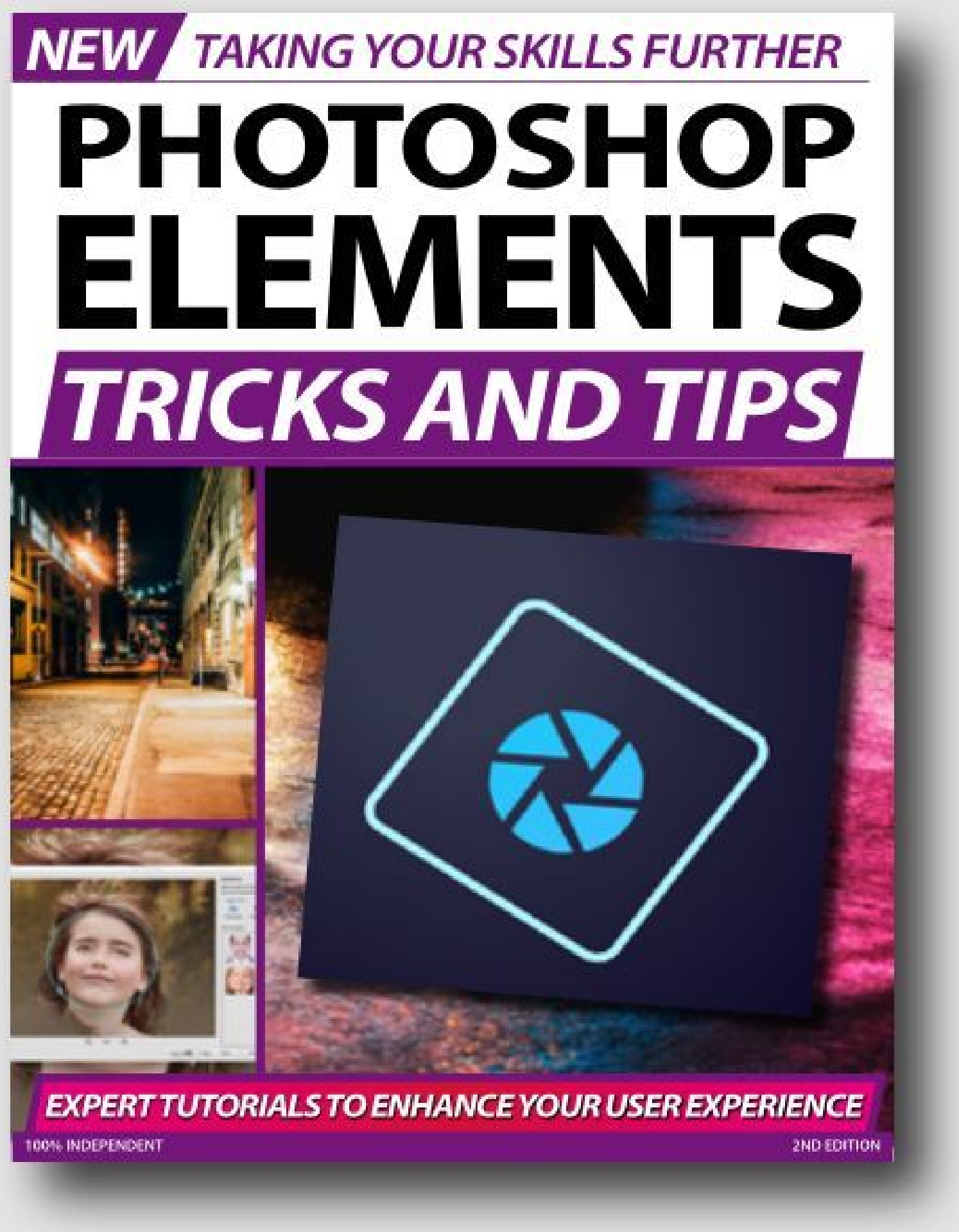
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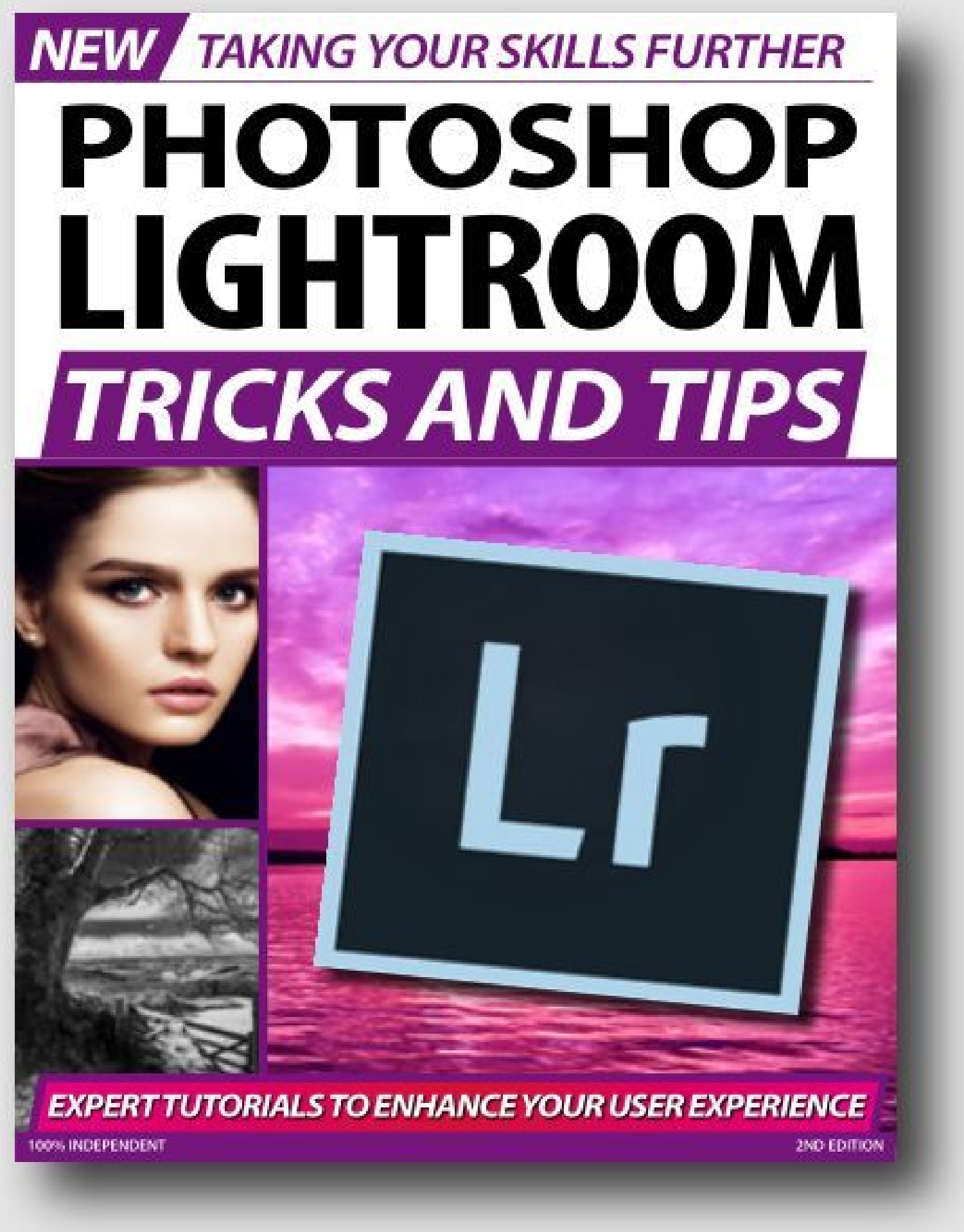
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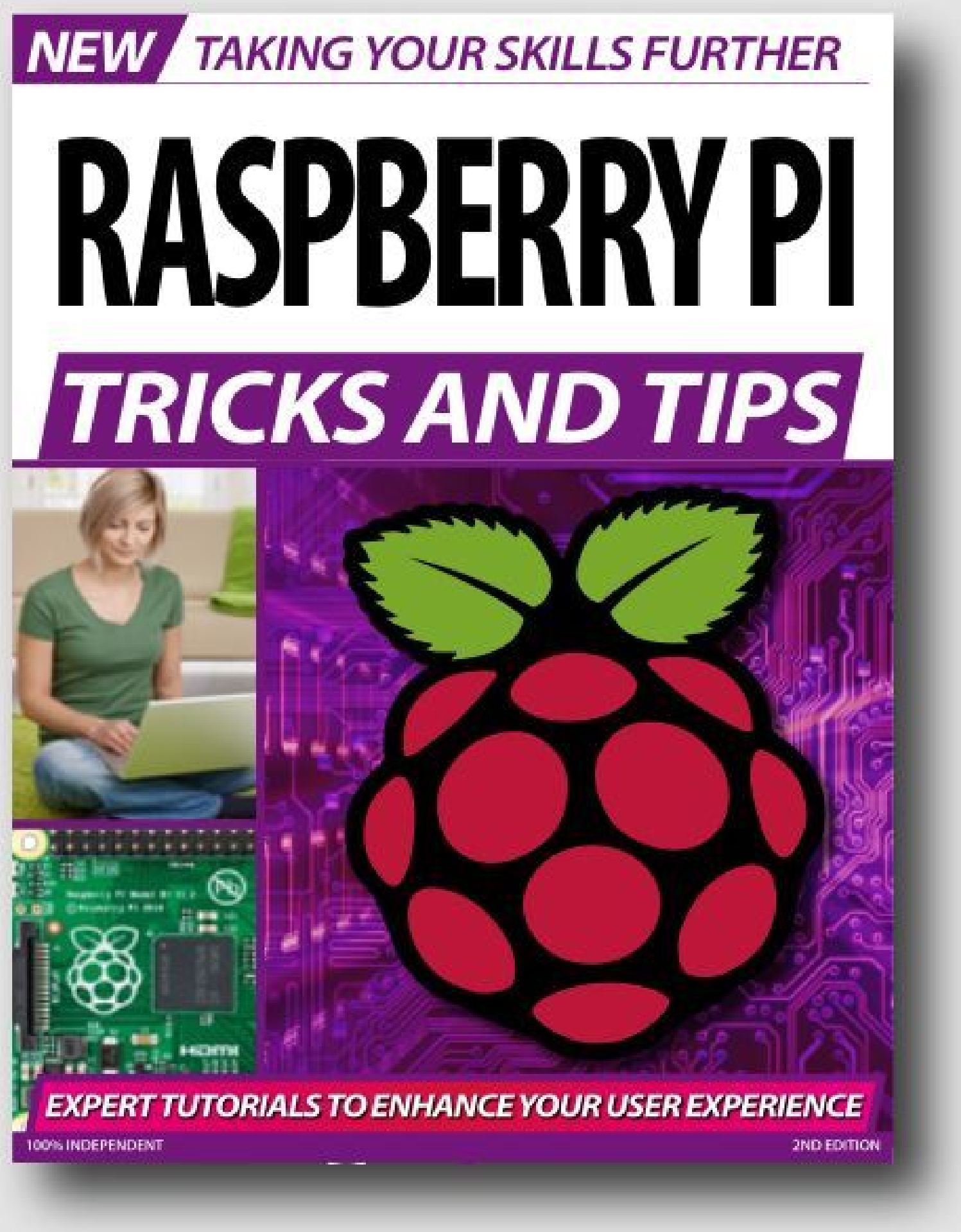
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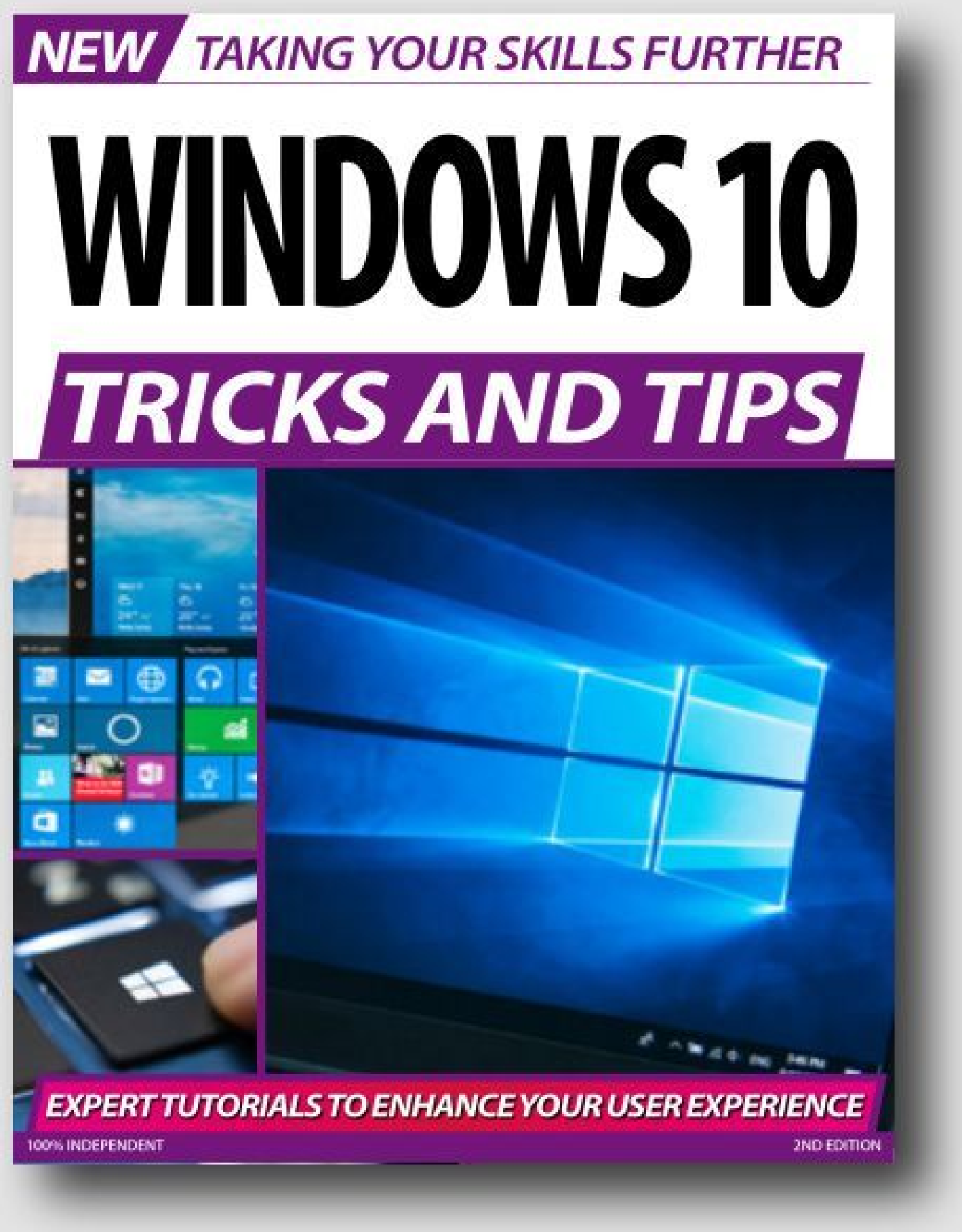
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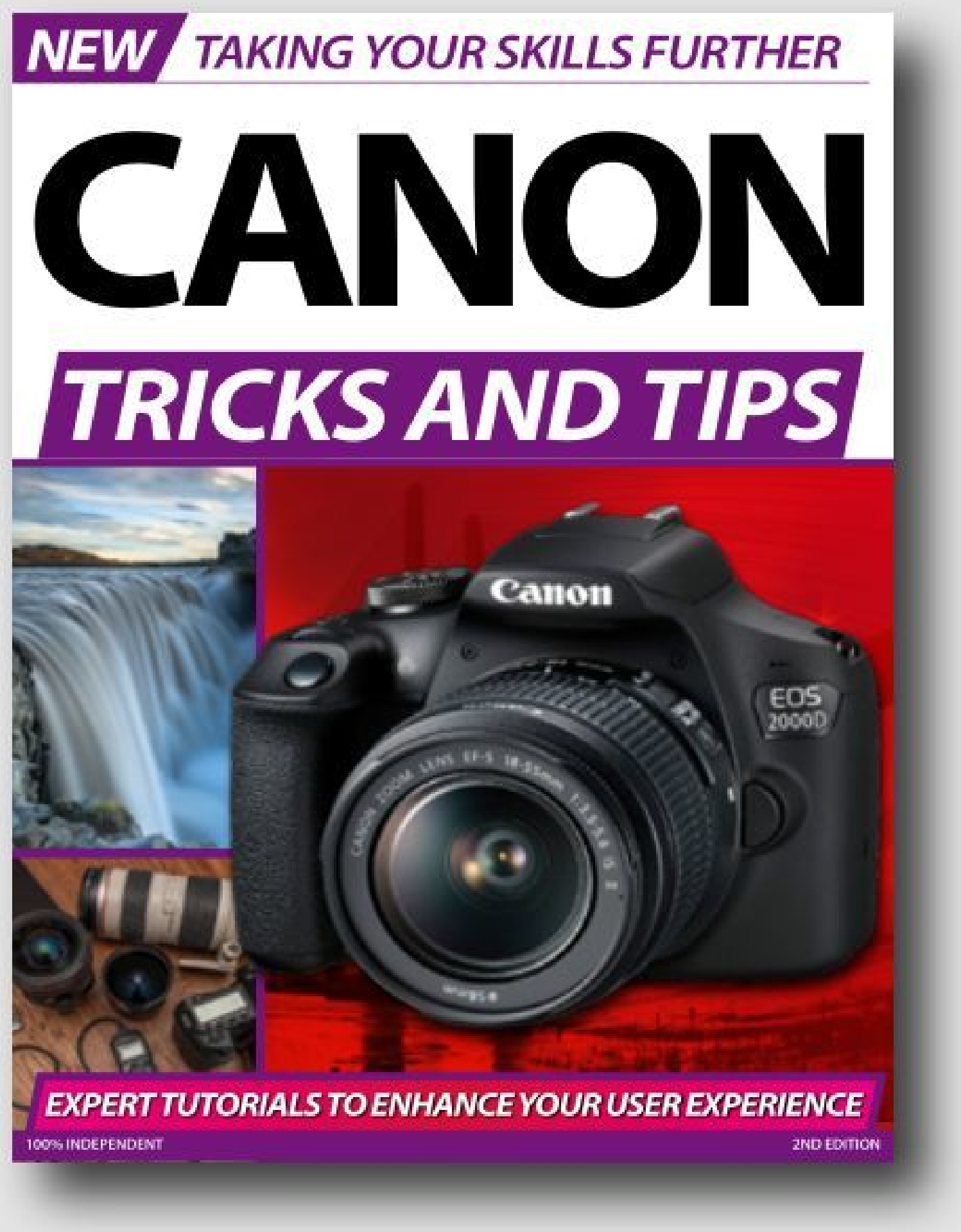
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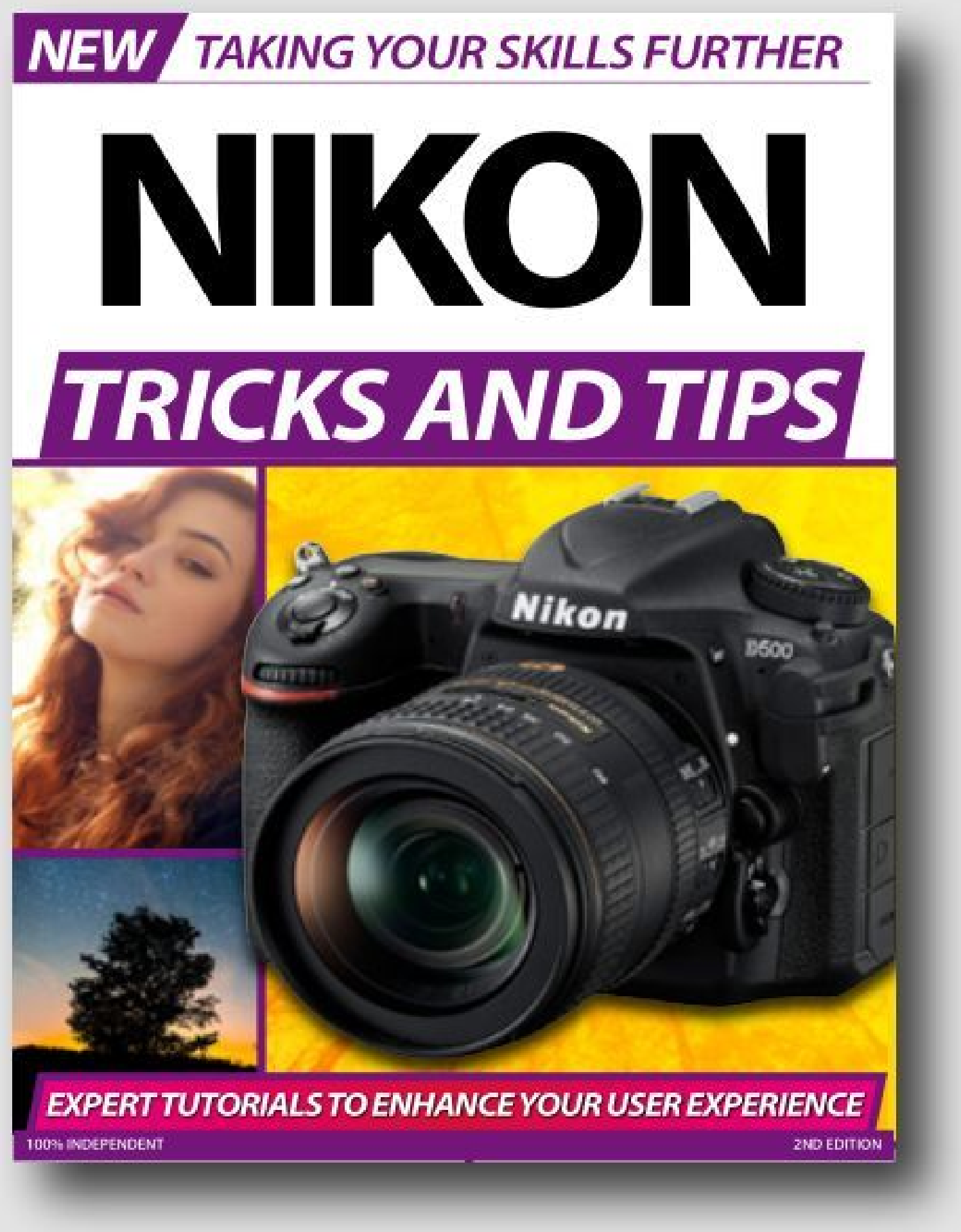
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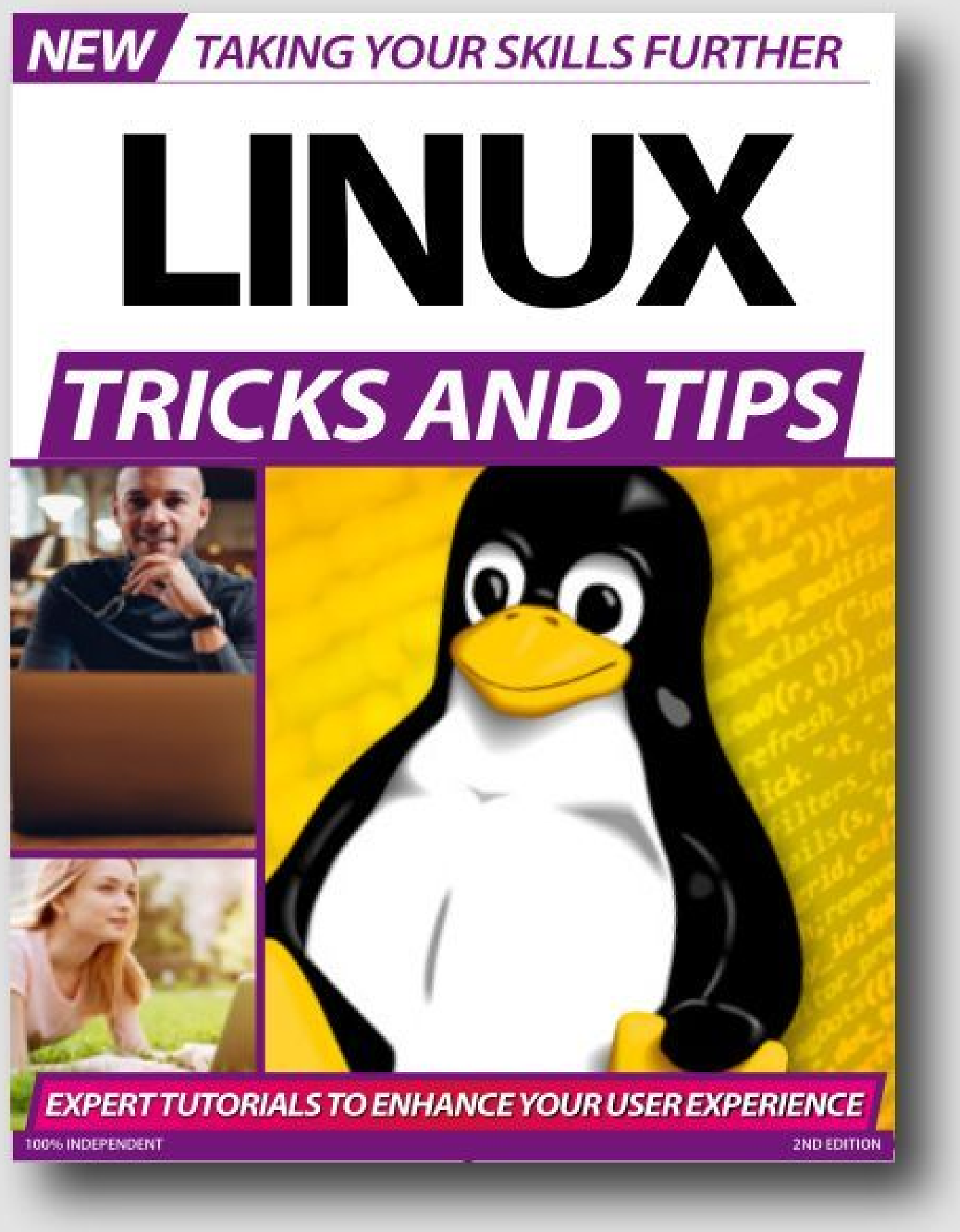
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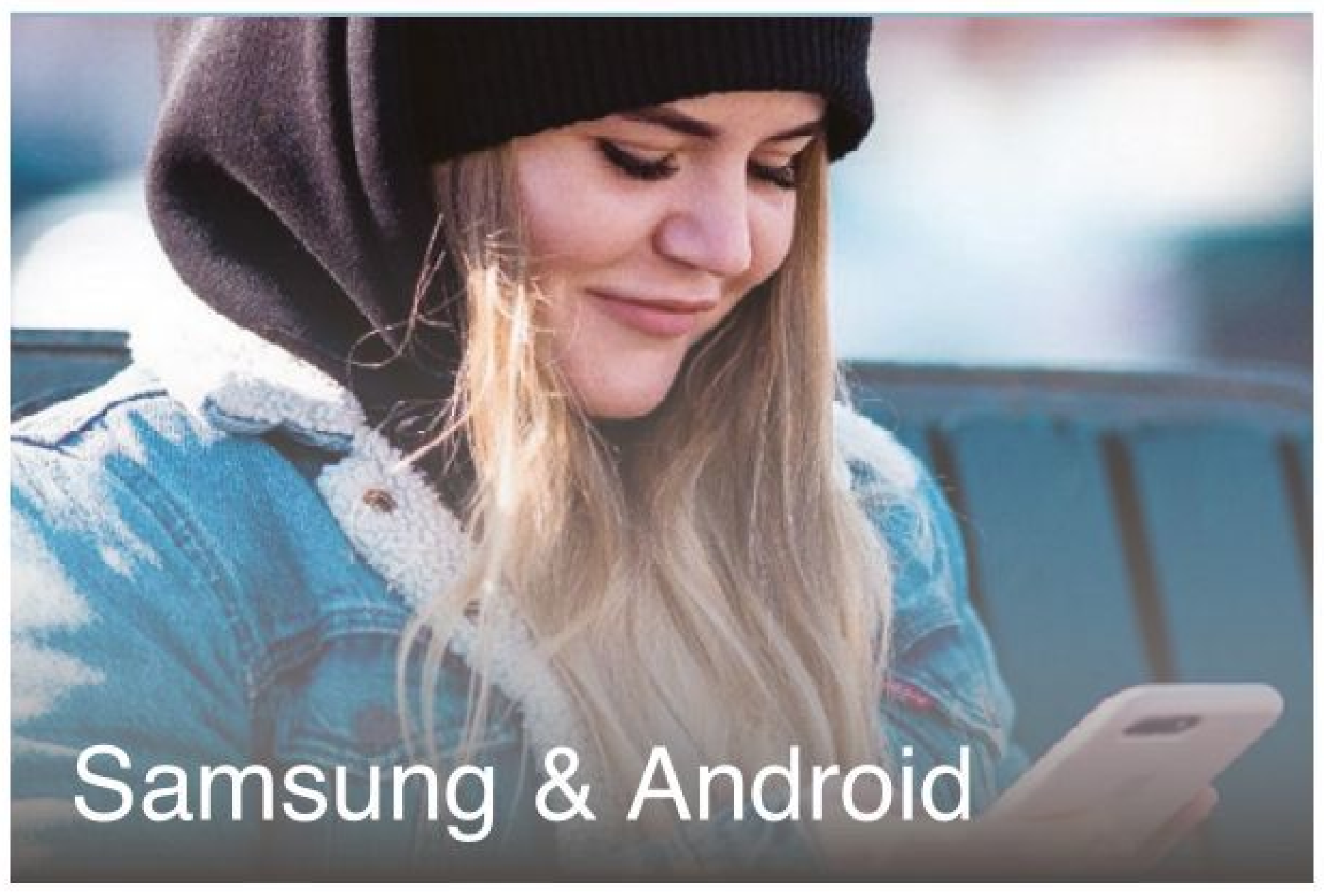

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